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Selected aspects of reproductive rights and reproductive health

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POPULATION DIVISION
UNITED NATIONS SECRETARIAT

WORLD POPULATION MONITORING 1996

Selected aspects of reproductive rights and reproductive health



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NOTE

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In some tables, the designations "developed" and "developing" countries are intended for statistical convenience and do not necessarily express a judgement about the stage reached by a particular country or area in the development process.

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PREFACE

The present report has been prepared in response to Economic and Social Council resolution 1995/55 of 28 July 1995, in which the Council endorsed the terms of reference and the topic-oriented and prioritized multi-year work programme proposed by the Commission on Population and Development at its twenty-eighth session.[1] In accordance with the multi-year work programme, which is to serve as a framework for the assessment of the progress achieved in the implementation of the Programme of Action of the International Conference on Population and Development,[2] a new series of reports on a special set of the themes is to be prepared annually. The theme selected for 1996, "Reproductive rights and reproductive health, including population information, education and communication", is the topic of this report.

In addition to an overview and introduction, this report consists of eight chapters covering the following topics: entry into reproductive life; reproductive behaviour; contraception; abortion; maternal mortality and morbidity; sexually transmitted diseases, including human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS); reproductive rights; and population information, education and communication with respect to reproductive rights and reproductive health. The report centres on issues covered in chapter VII (Reproductive rights and reproductive health) of the Programme of Action. However, as pointed out by the Commission on Population and Development, other chapters of the Programme of Action are also relevant to this issue, namely chapters IV (Gender equality, equity and empowerment of women); V (The Family, its roles, rights, composition and structure); VIII (Health, morbidity and mortality); XI (Population, development and education); and XII (Technology, research and development).

This report contains an extensive set of annex tables providing indicators of the current demographic situation in major areas and regions, as well as data on population size and growth, population distribution, and fertility and mortality levels in countries, major areas and regions. These annex tables also provide data specific to reproductive rights and reproductive health.

The report was prepared by the Population Division of the United Nations Secretariat. Acknowledgements are due to the various United Nations offices, regional commissions and specialized agencies that helped directly or indirectly in its preparation. In particular, chapters V and VI were prepared by the World Health Organization (WHO) and chapter VIII was based on contributions from the United Nations Children's Fund (UNICEF), the United Nations Population Fund (UNFPA), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and WHO.

NOTES

[1] See *Official Records of the Economic and Social Council, 1995, Supplement No. 7* (E/1995/27), annexes I and II.

[2] *Report of the International Conference on Population and Development, Cairo, 5-13 September 1994* (United Nations publication, Sales No. E.95.XIII.18), chap. I, resolution 1, annex.

SOURCES, METHODS AND CLASSIFICATIONS

Global and regional data on demographic trends used in the present report are taken mostly from *World Population Prospects: The 1994 Revision*.[1] Country data are taken from either the same report, national sources or various United Nations sources, as appropriate. Population policy data are taken from the Population Policy Data Bank maintained by the Population Division of the United Nations Secretariat, and in particular from the Seventh United Nations Population Inquiry among Governments, carried out during 1992 and 1993. As the quality of data varies considerably from country to country depending upon the types and nature of the data, caution is advised in their interpretation.

In the case of the United Nations estimates and projections, the estimates were made by collecting, evaluating and adjusting, as necessary, all available data for the period 1950-1990. For the period 1990-2050, figures are mostly the result of projections from the year 1990, except in such cases where reliable, more recent data are available.

The countries and areas, which are identified as statistical units by the Statistics Division of the United Nations and covered by the estimates and projections mentioned above, are grouped geographically into six major areas: Africa; Asia; Europe; Latin America and the Caribbean; Northern America; and Oceania. Those major areas are further divided geographically into 21 regions. In addition, the regions are divided, for statistical convenience, into two general groups - more developed and less developed - on the basis of demographic and socio-economic characteristics. The less developed regions include all regions of Africa, Asia (excluding Japan), Latin America and the Caribbean, and Oceania (excluding Australia and New Zealand). The more developed regions include all other regions plus the three countries excluded from the less developed regions. Other regional groupings are used, as appropriate to the subject matter.

NOTE

[1]United Nations publication, Sales No. E.95.XIII.16.

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Explanatory notes

Symbols of United Nations documents are composed of capital letters combined with figures.

The following symbols have been used in the tables throughout this report:

Two dots (..) indicate that data are not available or are not separately reported.

An em dash (—) indicates that the amount is nil or negligible.

A hyphen (-) indicates that the item is not applicable.

A minus sign (-) before a figure indicates a decrease.

A point (.) is used to indicate decimals.

A slash (/) indicates a crop year or financial year, for example, 1994/95.

Use of a hypen (-) between dates representing years, for example, 1994-1995, signifies the full period involved, including the beginning and end years.

Details and percentages in tables do not necessarily add to totals because of rounding.

Reference to "dollars" ($) indicates United States dollars, unless otherwise stated.

The term "billion" signifies a thousand million.

The group of least developed countries currently comprises 48 countries: Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Cape Verde, the Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, the Gambia, Guinea, Guinea-Bissau, Haiti, Kiribati, the Lao People's Democratic Republic, Lesotho, Liberia, Madagascar, Malawi, Maldives, Mali, Mauritania, Mozambique, Myanmar, Nepal, the Niger, Rwanda, Samoa, Sao Tome and Principe, Sierra Leone, Solomon Islands, Somalia, the Sudan, Togo, Tuvalu, Uganda, the United Republic of Tanzania, Vanuatu, Yemen and Zambia.

The following abbreviations have been used:

AIDS	acquired immunodeficiency syndrome
ART	assisted reproductive technology
ASFR	age-specific fertility rate
CM	currently married
CPS	Contraceptive Prevalence Survey
DHS	Demographic and Health Surveys
EM	ever married
FFS	Family and Fertility Surveys
FP/MCH	family planning/maternal and child health
FPS	Family Planning Survey
GCHS	Gulf Child Health Surveys
HDP	hypertensive disorders of pregnancy
HIV	human immunodeficiency virus
ICD	International Classification of Diseases
IEC	Information, education and communication
INSEE	Institut national de la statistique et des études économiques
IPPF	International Planned Parenthood Federation
IUD	intrauterine device
IUSSP	International Union for the Scientific Study of Population
MMR	maternal mortality ratio
NDS	National Demographic Survey
PAPCHILD	Arab Maternal and Child Health Surveys

PID	pelvic inflammatory disease
RAMOS	Reproductive Age Mortality Surveys
RTI	reproductive tract infection
STD	sexually transmitted disease
TFR	total fertility rate
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WFS	World Fertility Survey
WHO	World Health Organization
WHO/GPA	World Health Organization Global Programme on AIDS
YARHS	Young Adult Reproductive Health Surveys

OVERVIEW

OVERVIEW

Reproductive health is defined in the Programme of Action of the International Conference on Population and Development[1] as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health thus encompasses the confronting of problems that may arise all through life and not just during the reproductive years. Reproductive rights are central to the achievement of reproductive health. They include the basic right of couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so, as well as the right to make decisions concerning reproduction, free of discrimination, coercion and violence.

The broad and comprehensive approach to reproductive health reflected in the above definition contrasts with previous approaches dealing with reproduction, which focused exclusively on family planning, maternal and child health, or safe motherhood. Reproductive health incorporates all those approaches in a comprehensive manner and stresses the need to address the reproductive rights of men and women as well as the social behaviour and cultural practices that affect reproductive health outcomes.

The events that define entry into reproductive life and their timing are important determinants of both fertility and reproductive health and have important implications for the future life course of individuals. In a number of societies, menarche is taken as a sign of maturity and the readiness to marry or commence sexual activity. Studies documenting age at menarche show that it can vary by up to five years between different population groups, and that it tends to be lower in developed than in developing countries. Furthermore, age at menarche has been declining in most developed countries. Evidence for developing countries is less well documented, but declines are also apparent in a number of population groups. Although a declining age at menarche implies an earlier potential to reproduce, this biological factor has been offset by increases in age at first marriage.

Traditionally, age at marriage has been regarded as marking the initiation of sexual activity and therefore the beginning of exposure to reproduction. Changes in the timing of first marriage around the world are well documented, and it is clear that age at first marriage among women has risen considerably in many countries. According to recent survey data, the shift towards later marriage is most pronounced in Asian countries, but the proportion married by age 20 has also declined significantly in Africa and Latin America and the Caribbean. In countries of Northern and Western Europe, age at first marriage rose from 22-23 years in 1970 to 25-27 years in 1990. Increases have also occurred in Northern America, but in Eastern and Southern Europe they have been more modest. Rising educational attainment is highly correlated with later entry into marriage. The differences in the age at marriage between men and women have narrowed over time in many developing countries, especially in those where the differences were the largest. In Northern America and Europe, the differences have contracted further in recent decades.

With respect to reproductive behaviour, it is noted that during the period 1980-1995 fertility continued its downward trend. At the world level, the average number of children per woman declined from 3.6 in 1980-1985 to 3.1 in 1990-1995. The underlying change in reproductive behaviour, however, differs greatly by region. In the more developed regions, there was only a slight decline in fertility, which had been below replacement since the late 1970s, whereas in the less developed regions the decline has been from 4.2 to 3.5 children per woman. The observed reduction was more modest in the least developed countries, where fertility decline was from 6.4 to 5.8 children per woman.

Childbearing during adolescence has emerged as an issue of increasing concern throughout the developing and the developed world. There is growing awareness that early childbearing poses a health risk for the mother and the child and may truncate a girl's educational career, threatening her economic prospects, earning capacity and overall well-being. It is estimated that worldwide about 15 million women aged 15-19 give

birth each year and that about 11 per cent of all babies are currently born to adolescents. The level of adolescent fertility in the least developed countries (140 births per 1,000 women under age 20) is twice as high as that in the developing countries (65 births per 1,000) and four times higher than that in the developed countries (32 births per 1,000).

The timing of the onset of childbearing has important implications for individuals, families and societies and it is remarkably similar across a wide range of developing societies, falling within the age range of 19-22 years. In most developed countries, entry into motherhood occurs at a later age, usually between ages 22 and 27. The trend observed during the past decade in both developing and developed societies has been towards a delayed pattern of family formation.

Family planning is an integral part of reproductive health. In developing countries during the early 1960s, when women had, on average, 6.1 children over their reproductive lives, probably less than 10 per cent of all couples where the woman was of reproductive age used contraception. In 1991, an estimated 53 per cent of couples did. In developed countries, the figure was 71 per cent, and for the world as a whole the average was 57 per cent. The level of contraceptive use in Africa, at 19 per cent, was far below the average level for the other developing regions—79 per cent in Eastern Asia, 43 per cent in the remainder of Asia and Oceania, and 59 per cent in Latin America and the Caribbean. The transformation in contraceptive practice reflects the growing desire of couples and individuals to have smaller families and to choose when to have their children. It also reflects major increases in the availability of effective modern contraceptives in developing countries and of associated family planning information and services. Most users of contraception are women, and most use modern methods, especially female sterilization, intrauterine devices (IUDs) and oral pills, which account for over two thirds of contraceptive practice worldwide.

Although available trend data show that there has been a substantial recent increase in contraceptive use in many developing countries, various indicators suggest that the level of unmet need remains high, with about 20-25 per cent of couples in developing countries (except China) being at risk of an unwanted or mistimed pregnancy but not using contraception. In Africa and in some countries in other regions, substantial proportions of the population still do not know that any type of contraception exists. In general, problems of limited knowledge of and access to family planning are a reflection of the difficulty many Governments have themselves experienced in extending services nationwide rather than the result of a deliberate policy to restrict access. By 1995, only 2 out of 190 Governments had an official policy of limiting access to modern contraceptive methods, while 82 per cent of Governments provided direct support for family planning services.

Partly as a result of the unmet need for contraception, in 1990 an estimated 25 million legal abortions were performed worldwide, or one legal abortion for every six births. This estimate must be considered the minimum number of legal abortions, as no attempt has been made to estimate the magnitude of unreported legal abortions. Given the clandestine nature of unsafe abortion, its incidence is very difficult to gauge. The World Health Organization (WHO) estimates that some 20 million unsafe abortions are performed each year. Thus, at a minimum, some 45 million abortions a year are thought to be carried out globally, meaning nearly one abortion for every three live births.

Based on information available for 193 countries, the overwhelming majority (98 per cent) permit abortions to be performed to save the pregnant woman's life. Abortion to preserve the woman's physical health is permitted in 119 countries (62 per cent). Fewer countries (95), or 50 per cent, allow abortion to preserve the woman's mental health, and 81 countries (42 per cent) permit abortion when pregnancy has resulted from rape or incest. The number declines to 78 countries (40 per cent) when the possibility of foetal impairment exists and to 55 countries (29 per cent) when there are economic or social reasons for the operation. Lastly, in 41 countries (21 per cent), abortion is available upon request.

Maternal mortality is among the various indicators commonly used to compare levels of development between countries and regions, and it is one whose levels reflect striking disparities. Maternal mortality is also a sensitive indicator of the status of women in society, their access to health care and the adequacy of the health-care system in responding to their needs. There are, however, few countries with data permitting an adequate estimation of maternal mortality. To fill the information gap, WHO has developed a model to estimate maternal mortality levels in countries lacking such information. The estimates obtained indicate that

maternal mortality is higher than previously estimated with some 585,000 maternal deaths annually rather than 509,000, according to the previous estimates. The most significant difference holds for Africa, where maternal mortality is estimated at 870 maternal deaths per 100,000 live births (in contrast with the earlier estimate of 630 deaths per 100,000 live births).

Until recently, the prevention and control of sexually transmitted diseases was accorded low priority by most countries and development agencies but the prevention of transmission of infection is currently receiving increased attention because of the global epidemic of infection due to human immunodeficiency virus (HIV), the resulting acquired immunodeficiency syndrome (AIDS), and the identification of several sexually transmitted diseases as risk factors for the spread of HIV. The epidemiological trends of sexually transmitted diseases in various parts of the world are strikingly different. WHO estimates that about 333 million curable cases of sexually transmitted diseases, most of them in developing countries, occur globally every year. As its second decade elapses, the HIV epidemic continues to grow. It is estimated that a cumulative total of 18.5 million adults and 1.5 million children have been infected with HIV. Of all the persons infected, 7 million-8 million are women, about 70 per cent of whom are of childbearing age. According to WHO, between 13 million and 15 million infected adolescents and adults, in addition to about half a million infected children, are alive at present. Over the past 10 years, the response to HIV/AIDS has focused on prevention and care. Governments, non-governmental organizations, communities, associations and networks of people living with HIV/AIDS, international organizations, and the health, education and other sectors, as well as the public and private sectors, have worked in partnership to develop a response to the epidemic.

In the area of population policy, the issue of reproductive rights is a relatively new subject, and one not devoid of controversy insofar as it touches on the most personal and intimate areas of life, namely, sexuality, sexual relations and reproduction. Reproductive rights are also central to intra-familial relations and are linked with the status and empowerment of women, matters that are themselves the source of controversy in many countries. Although the concept of reproductive rights is of relatively recent origin, there is ample support for those rights in existing international documents and human rights treaties. Thus, the final documents adopted at all of the past three international conferences on population, as well as at the Fourth World Conference on Women, strongly champion reproductive rights. Yet, many obstacles exist to the effective recognition of reproductive rights and the achievement of reproductive health. Because of the sensitive and controversial character of the issues involved, there is resistance to the expansion of reproductive rights and, in many countries, the general public is still not aware of the meaning and scope of those rights. The less educated are especially likely to lack knowledge of their rights. Women in particular are more likely than men to be subject to restrictions that prevent them from obtaining information on their rights and may thus remain unaware of their reproductive rights, and this situation is unlikely to lead to the effective exercise by women of those rights. An important strategy for improving the effective recognition of reproductive rights is to increase the provision of information and education concerning them. In this respect, information, education and communication activities can play a crucial role, especially by motivating policy makers, programme managers, service providers and communities to translate into action the concept of reproductive rights and reproductive health, including family planning.

NOTE

[1] *Report of the International Conference on Population and Development, Cairo, 5-13 September 1994* (United Nations publication, Sales No. E.95.XIII.18), chap. I, resolution 1, annex.

INTRODUCTION

The Programme of Action of the International Conference on Population and Development (United Nations, 1995, chap. I, resolution 1, annex), held at Cairo in 1994, defines reproductive rights and reproductive health as follows:

"Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in this last condition are the right of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health-care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant. In line with the above definition of reproductive health, reproductive health care is defined as the constellation of methods, techniques and services that contribute to reproductive health and well-being by preventing and solving reproductive health problems. It also includes sexual health, the purpose of which is the enhancement of life and personal relations, and not merely counselling and care related to reproduction and sexually transmitted diseases.

"Bearing in mind the above definition, reproductive rights embrace certain human rights that are already recognized in national laws, international human rights documents and other consensus documents. These rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so, and the right to attain the highest standard of sexual and reproductive health. It also includes their right to make decisions concerning reproduction free of discrimination, coercion and violence, as expressed in human rights documents. In the exercise of this right, they should take into account the needs of their living and future children and their responsibilities towards the community. The promotion of the responsible exercise of these rights for all people should be the fundamental basis for government- and community-supported policies and programmes in the area of reproductive health, including family planning. As part of their commitment, full attention should be given to the promotion of mutually respectful and equitable gender relations and particularly to meeting the educational and service needs of adolescents to enable them to deal in a positive and responsible way with their sexuality. Reproductive health eludes many of the world's people because of such factors as: inadequate levels of knowledge about human sexuality and inappropriate or poor-quality reproductive health information and services; the prevalence of high-risk sexual behaviour; discriminatory social practices; negative attitudes towards women and girls; and the limited power many women and girls have over their sexual and reproductive lives. Adolescents are particularly vulnerable because of their lack of information and access to relevant services in most countries. Older women and men have distinct reproductive and sexual health issues which are often inadequately addressed" (chap. VII, paras. 7.2-7.3).

The broad and comprehensive approach to reproductive health reflected in the above definitions contrasts with various previous approaches dealing with reproduction. These earlier approaches focused on specific aspects of reproductive health. For example, family planning programmes concentrated on providing information and services on contraception. Maternal and child health programmes focused on promoting the health of mothers and their young children, while safe

motherhood programmes emphasized the need to ensure that pregnant women would receive adequate prenatal care, safe delivery and post-natal care and sought to address the high risks that women in many contexts faced in relation to childbearing.

Reproductive health incorporates all of those aspects in a comprehensive manner. While acknowledging the importance of family planning, this approach recognizes that reproductive health is not limited to the childbearing ages and that reproductive health concerns men as well as women. It also recognizes that to address reproductive health issues successfully, relevant social behaviour and cultural practices need to be considered.

It is based on the premise that the health status of individuals at any given time is affected by their earlier experiences. The reproductive health of men and women of childbearing ages for example, reflects not only their current experiences, but also their health status during infancy, childhood and adolescence. Similarly, their health status beyond the reproductive ages may reflect their earlier reproductive experiences. The experiences of one generation also have implications for the health of the next generation. Four stages of life are often recognized as playing important independent and interactive roles in determining reproductive health: infancy and childhood; adolescence; childbearing ages; and post-reproductive ages.

(a) Infancy and childhood. The connection between reproductive health and infancy and early childhood is a complex one that clearly demonstrates the relationship between the health status of one generation and the next. It is well known that the health of the parents, especially of the woman before and during pregnancy and the services available to her throughout her pregnancy, particularly at delivery, are important determinants of the health status of their children. It has also been shown that children whose health status is compromised at birth are more likely than others to succumb to various health problems later in life. Boys and girls who are malnourished may later experience delayed puberty. For example, an increase in and the maintenance of a critical body fat level are a prerequisite of both the onset and the regularity of ovulatory cycles. Malnourished girls may therefore also experience irregular menstrual cycles and, possibly, impaired fertility (Baker, 1985). Harmful practices, such as female genital mutilation, may also have significant negative effects on reproductive health at later ages.

(b) Adolescence. The special needs of adolescents have not received sufficient attention in most reproductive health and family planning programmes. However, adolescence is a period during which prospects for a healthy reproductive life can be compromised, especially because of premature entry into sexual relationships, engagement in high-risk sexual behaviour and lack of basic health information and services.

Unprotected premature sexual activity poses reproductive health risks, whether it occurs in the context of early marriage and childbearing, or as a result of premarital sexual exposure. There is a strong association between early sexual initiation and subsequent infertility. Sexually active adolescents of both sexes are increasingly at risk of contracting and passing on sexually transmitted diseases, including human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), and they are typically poorly informed on how to protect themselves. Early pregnancy entails a high risk of complications because of the inadequate development of the adolescent mother. Motherhood at a very young age also entails a risk of maternal death that is much greater than average and the children of young mothers have higher levels of morbidity and mortality.

Young women may face additional health risks as a result of unsafe abortion.[1] Because adolescents are sometimes unwilling or unable to seek appropriate health care or wait longer in the gestation period to obtain help, induced abortion generally presents a greater risk to the adolescent, in terms of health and life than to the adult woman (World Health Organization, 1995).

(c) The childbearing ages. The reproductive health status of men and women during the childbearing ages reflects, to a large extent, the accrued risks in earlier stages of the life cycle. If fertility has been impaired through high-risk sexual behaviour in adolescence, this often becomes apparent during the childbearing ages. The consequences of earlier poor health status, such as malnutrition, also become apparent during the childbearing ages when complications may arise during pregnancy and childbearing. Female genital mutilation can present

life-threatening complications during pregnancy and childbirth through obstructed labour, haemorrhage and infection.

The childbearing years are a particularly high-risk period for many women in developing countries. Maternal mortality and morbidity are highest when access to reproductive health services, including family planning, is poor and where society puts pressure on couples to have many children.

(d) The post-reproductive years. The consequences of reproductive behaviour and reproductive health during the childbearing years also have implications for older ages. The impact of prolonged childbearing is likely to persist into later adult years. Complications of childbirth, such as obstructed labour, haemorrhage and various infections of the reproductive tract, may continue to present problems well beyond the reproductive ages (Royston and Armstrong, 1989). There are also major reproductive health problems that originate during the post-reproductive years. In women, menopause triggers many biological and physical changes that may lead to alterations in the skeletal and cardiovascular systems. Generally, tumours of the reproductive organs become more prevalent in the post-reproductive ages. In men, tumors of the prostate gland are relatively common in the later adult years. The risks of cancer are higher for men and women with a history of early sexual initiation, multiple partners and untreated sexually transmitted diseases.

The present report provides a global review of selected aspects of reproductive rights and reproductive health. The topics covered include entry into reproductive life; reproductive behaviour; contraception; abortion; maternal mortality and morbidity; sexually transmitted diseases, including HIV/AIDS; and policy issues related to reproductive rights, as well as population information, education and communication with respect to reproductive rights and reproductive health.

To the extent possible, the reproductive rights and reproductive health of both men and women are reviewed in this report. However, data collection and research have until recently focused primarily on the reproductive and contraceptive behaviour of women. It is only during the past few years that demographic and health surveys have begun to include men. The need to collect data and conduct research on the reproductive attitudes and behaviour of both men and women has become more imperative, given the renewed emphasis on the shared responsibility of partners in matters related to reproduction. Information is also lacking on the reproductive health of adolescents and of older men and women, who are usually not subjects of inquiry in demographic and health surveys.

NOTE

[1]Unsafe abortion is defined as a procedure for terminating an unwanted pregnancy that is performed by persons lacking the necessary skills and/or in an environment lacking the minimal medical standards or both (based on World Health Organization, *The Prevention and Management of Unsafe Abortion*, Report of a Technical Working Group (WHO/MSM/92.5), (Geneva, April 1992).

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I. ENTRY INTO REPRODUCTIVE LIFE

Initiation of reproductive capability generally occurs in the second decade of life. The events that define entry into reproductive life, and their timing, are important determinants of fertility and reproductive health and have important implications for the future life course of individuals.

The present chapter brings together global information on trends in those biographical developments that define the beginning of reproductive life. These include age at menarche, age at first intercourse and age at first marriage. Primary data sources used include population censuses, Demographic and Health Surveys (DHS), Young Adult Reproductive Health Surveys (YARHS) and the recent World Health Organization Global Programme on AIDS (WHO/GPA) surveys, as well as a number of ad hoc surveys on sexual behaviour such as the British Sexual Attitudes and Behaviour Survey.

Young people, sexual exposure and the risk of pregnancy

The stage of life during which individuals reach sexual maturity has come to be known as adolescence; it is the period of transition from childhood to adulthood. Although the change is biological, the duration and nature of adolescence are primarily a social construct and thus vary greatly from culture to culture. In some cultures, adolescence may not exist at all: the child moves directly into what is considered adulthood. WHO identifies the age range 10-19 years as the period of adolescence, while the term "youth" denotes the age group 15-24 (World Health Organization, 1986a). The WHO definitions have been widely adopted, but in much of the literature the terms "adolescence" and "youth" are used interchangeably. This chapter refers to the combined age range 10-24 years, which WHO refers to as encompassing "young people", but focuses mostly on the age group 15-24. This age span incorporates much of the variation seen between countries and population subgroups in the events that define the beginning of reproductive life.

Among health professionals, there is growing attention to young people because this period of development is increasingly recognized both as an important determinant of future health, and as a specially vulnerable period of life. In particular, increasing concern has been expressed about sexual risk-taking among young people, and the consequences of such behaviour, including teenage pregnancy (Senderowitz, 1995; Mellanby and others, 1995). The incidence of sexually transmitted diseases, including infections with the human immunodeficiency virus (HIV) in this age group has been rising steadily. HIV is spreading more rapidly among women aged 15-24 than in any other age group, and accounts for 70 per cent of HIV infections among women worldwide (Senderowitz, 1995). WHO estimates that globally 1 in 20 teenagers contracts a sexually transmitted disease each year (World Health Organization, 1989). Sexually active adolescents of both sexes are increasingly at high risk of contracting and transmitting sexually transmitted diseases, including HIV/AIDS, and they are typically poorly informed about how to protect themselves. The Programme of Action of the International Conference on Population and Development (United Nations, 1995a, chap. I, resolution 1, annex), held at Cairo in 1994, urged Governments, in collaboration with non-governmental organizations, to meet the special needs of adolescents and to establish appropriate programmes to respond to those needs.

The challenges of addressing the needs of adolescents are compounded by demographic factors. The number of persons aged 15-24 is increasing dramatically in absolute terms. Proportions and trends vary greatly between the developed and the developing countries (see figure 1). Although the absolute numbers of the population aged 15-24 are increasing, that age group, in terms of relative size, will never again be as large as it was in most regions in 1995. In Africa, however, this age group will continue to increase relative to other age groups until the year 2030. In 1995, it is estimated that young people (aged 15-24) make up over 14 per cent of the total population in the more developed regions[1] and almost 20 per cent in the less developed regions[2] (table 1).

Despite a growing interest in young people's sexual and reproductive health, systematic data on young

TABLE 1. ESTIMATED AND PROJECTED POPULATION, AGED 15-24, 1995 AND 2025

Region	Sex	1995		2025	
		Population aged 15-24	*Percentage of total population*	*Population aged 15-24*	*Percentage of total population*
World	Total	1 028 054	18.0	1 306 410	15.8
	Male	526 795	18.2	666 888	16.0
	Female	501 259	17.6	639 522	15.5
More developed regions[a]	Male	83 838	14.8	73 634	12.2
	Female	80 245	13.4	70 161	11.1
Less developed regions[b]	Male	442 957	19.1	593 254	16.6
	Female	421 013	18.8	569 360	16.3
Africa	Male	70 315	19.4	147 028	19.7
	Female	69 599	19.1	145 226	19.4
Asia	Male	334 080	18.9	395 455	15.7
	Female	313 141	18.5	374 689	15.3
Europe	Male	52 357	14.9	41 442	11.9
	Female	50 167	13.3	39 409	10.7
Latin America and the Caribbean	Male	47 353	19.7	56 220	15.9
	Female	46 656	19.2	54 639	15.3
Northern America	Male	20 310	14.2	23 762	13.1
	Female	19 433	13.0	22 728	12.1
Oceania	Male	2 377	16.5	2 979	14.5
	Female	2 262	15.9	2 829	13.8

Source: *World Population Prospects: The 1994 Revision* (United Nations publication Sales No. E.95.XIII.16).

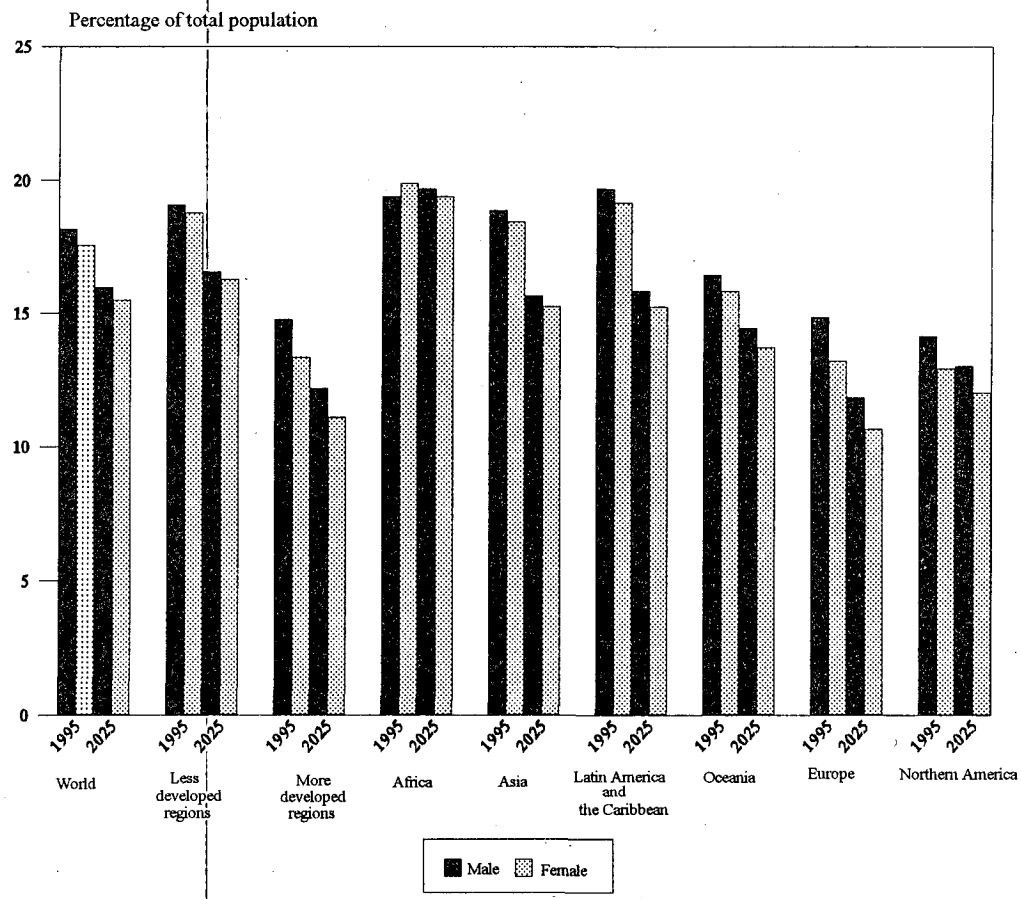
[a]Comprising all regions in Europe, Northern America and Australia, New Zealand and Japan.

[b]Comprising all regions of Africa, Asia (excluding Japan), Latin America and the Caribbean, and regions of Melanesia, Micronesia and Polynesia.

people's sexual behaviour are scarce, especially that of young men. Several indicators of sexual exposure and the risk of childbearing exist, although none is satisfactory. These include proportion married; proportion married or cohabiting; proportion in a sexual relationship for at least 12 months; and proportion that have experienced sexual intercourse. A United Nations study on reproductive behaviour of adolescence (United Nations, 1988b; 1989) provided estimates of the probable upper and lower bounds of sexual activity and exposure to the risk of childbearing activity among adolescents in both developed and developing countries, using a combination of those that reported marriage or cohabitation and those that were sexually experienced.

Traditionally, marriage has been used by demographers as an indicator of sexual exposure. However, changes in the nature and timing of sexual and reproductive events have led to underestimations of sexual exposure. Marriage alone is no longer an accurate marker of the beginning of regular sexual activity (United Nations, 1988b; 1989). Some data exist on cohabiting relationships between unmarried young men and women that allow a better estimation of the proportion of young people subject to sexual exposure. Age-specific fertility rates also provide a measure of sexual activity, as do statistics on abortion. In general, however, problems related to determining when cohabiting relationships between men and women are reported as

Figure 1. Estimated and projected population, aged 15-24, 1995 and 2025



Source: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

marriage, and those stemming from non-representative sampling and small sample sizes, erode comparability and prevent reliable generalizations. In some countries, information on age at first intercourse and frequency of intercourse have been obtained.

The aforementioned United Nations study on adolescent reproductive behaviour has assessed the evidence on young people's sexual and reproductive behaviour in developed and developing countries (United Nations, 1988b; 1989). There is also a growing body of standardized data from developing countries, obtained from the DHS programme and YAHRS. The DHS programme collects data from nationally representative samples of women of reproductive age (15-49). The data include a wealth of standardized information on women's sexual and reproductive behaviour, which allows a comparative assessment across countries. Approximately 60 surveys have been conducted so far, and in 15 countries the surveys have also included information on males. The YARHS collect data from young men and women aged 15-24[3] on a wide range of social, economic and demographic characteristics, including sexual and reproductive behaviour. Most of these surveys, 13 over the past decade, have been conducted in Latin America and the Caribbean (Population Reference Bureau, 1992b). Recently, surveys conducted under WHO/GPA have added to the body of standardized data on sexual behaviour. The WHO/GPA surveys collected data on sexual behaviour and partner relations from men and women (aged 15-49). A total of 16 surveys carried out between 1989 and 1991 have

been analysed, of which 13 are based on nationally representative samples. These sources provide much of the data used in the review that follows.

A. MENARCHE

In a number of societies, menarche signifies maturity and the readiness to marry or commence sexual activity (Riley, Samuelson and Huffman, 1993; Gray and Doyle, 1983; Chowdhry and others, 1977), although in a few marriage precedes menarche. For example, in the Bangladesh Fertility Survey in 1989, 18 per cent of married women reported marriage before menarche (table 2). The data indicate, however, a decrease in proportions marrying before, or at menarche, a decline consistent with reported later age at marriage. In northern Nigeria, the majority of female participants in focus group interviews reported marriage prior to menarche. This result reflects the widely held belief in Hausa culture that girls should marry and live with their husbands prior to the onset of menses (Hirsch and Barker, 1992). However, while betrothal before puberty may occur, sexual initiation among females generally follows menarche.

A considerable number of studies document age at menarche around the world; however, many suffer from methodological weaknesses, tend to be small in scale, and focus on specific sub-groups. Becker (1993) provides a review of the relevant data. The age of onset varies by approximately five years between different population sub-groups. The average age for each region indicates a younger age at onset in the more developed than in the less developed regions. Calculation of the approximate average age at menarche for each region, using Becker's data, reveals an average age of 12.7 in South America;[4] 13.2 in Europe and Northern America; 14.0 in Asia; 14.3 in Africa; and 15.4 in Oceania. Age at onset in most developed countries has fallen in the past two decades, although in some countries this decline may now be levelling off. In developing countries, the decline has been less documented, but there is some evidence of a fall in age at onset in a number of population groups (Senderowitz and Paxman, 1985; Rogo, 1993). Thus, in Nigeria the age at menarche fell from 14 in the 1960s to 12.3 among higher socio-economic groups, and to 13 among poorer groups, in the 1970s (Senderowitz and Paxman, 1985, p. 19). Reasons for the fall are not fully understood, although it is commonly argued that improvements in nutrition and general health status are responsible.

TABLE 2. PERCENTAGE DISTRIBUTION OF WOMEN ACCORDING TO TIMING OF MARRIAGE IN RELATION TO MENARCHE, BY AGE: BANGLADESH

Timing of marriage in relation to menarche	*Current age*						
	20-24	*25-29*	*30-34*	*35-39*	*40-44*	*45-49*	*All*
Before	11	16	18	24	29	28	18
At same time ...	15	15	19	22	20	27	18
Number ..	2 521	2 100	1 886	1 364	1 168	944	11 907

Source: Adapted from Najmul Huq and J. Cleland, *Bangladesh Fertility Survey, 1989* (Dhaka, National Institute of Population Research and Training, 1990), p. 45, table 4.4.

The fall in age at menarche implies an earlier potential to reproduce. However, in general it would appear that the effect of this biological factor has been offset by other influences, especially by increases in age at first marriage. A widening of the gap between sexual maturation and marriage has therefore occurred in many countries. This period has often been referred to as the "bio-social gap" (Sai, 1984; Senderowitz and Paxman, 1985; Bledsoe and Cohen, 1993). The lengthening of the bio-social gap increases the risk that young people will engage in premarital sexual activity. Traditionally, however, age at marriage has been regarded as marking the initiation of sexual activity and therefore the beginning of exposure to reproduction. The following section presents data from around the world on age at first marriage. Trends over time are discussed and possible determinants of the dramatic shift in the timing of marriage are considered.

B. MARRIAGE

Marriage is the event traditionally used by demographers to estimate the time when regular sexual intercourse begins, and thus for women it is assumed to coincide with regular exposure to the risk of childbearing (United Nations, 1988b; 1989).

A greater degree of commitment and stability is what distinguishes regular sexual relationships from casual relationships. While regular sexual relationships are regarded as synonymous with marriage by demographers, such relationships take widely different forms,

ranging from formal unions approved under civil or religious law, to less formal unions.[5] Types of relationship may differ in their stability and legal, social and economic implications. In addition, a marriage or union can be polygamous or monogamous. The diversity of forms of partnership that constitute marriage complicates attempts to produce standardized estimates of the proportions exposed to regular sexual intercourse. A growing understanding of marriage processes in non-Western cultures and dramatic changes in the nature of sexual relations have added to the problem of measuring exposure to the risk of childbearing. Changing patterns of sexual behaviour have also complicated distinctions commonly made between marital and premarital sexual behaviour; indeed in some circumstances, these distinctions may no longer be useful.

The literature on nuptiality in Africa illustrates the challenge of using marriage as a marker of sexual exposure and being at risk of childbearing (see Bledsoe and Cohen, 1993; Meekers, 1993). Although a large proportion of young women in Africa are sexually experienced and many begin childbearing at an early age, these same women often report themselves as unmarried (Bledsoe and Cohen, 1993). Marriage in many African societies is not an event that occurs at a particular time. It often takes the form of a fluid process that can unfold over a long period. Pregnancy and childbirth may be part of the marriage process, assisting in its completion. Thus, it is often not easy to decide whether a woman is married, when the marriage began and whether sexual activity and childbirth were premarital. In the 1984 Botswana Family Health Survey (BFHS), women were asked whether they had a partner. On the basis of answers to that question, a larger proportion of young women were classified as "married" than in the DHS inquiry four years later, in which women were asked only whether they were married or living with a man (Westoff, 1992). Thus, reported changes in proportions married may be genuine or may stem from the manner in which questions are asked, or from changes in the perceptions of young women regarding the definition of marriage, or as a result of real changes in the timing of marriage.

Difficulties using proportions married as an indicator of exposure to regular sexual intercourse also arise from variations in the living arrangements of partners. Couples who are married or have a stable relationship are often assumed to be cohabiting. However, the WHO/GPA survey data on cohabitation among respondents that were married or had a regular partner,[6] demonstrate the importance of non-cohabitation among apparently stable partners. Data for persons aged 15-24 are not available, but those for older men and women show that non-cohabitation tends to be more common among those aged 25-29 than among older persons. It is reasonable to infer that cohabitation levels are lower still among those aged 15-24. In Kenya, Lesotho, Lusaka (Zambia), Rio de Janeiro (Brazil) and Singapore, over 25 per cent of young men aged 25-29 in a regular relationship do not live with their partner (table 3). In Côte d'Ivoire, almost 50 per cent of men aged 25-29 live separately from their spouses or regular female partners. Among women, reported non-cohabitation is less common but nonetheless remains high. Non-cohabitation is most common among the African populations covered by the WHO/GPA surveys, probably reflecting the effects of labour migration patterns (Caraël, 1995).

1. Timing of first marriage

The prevalence of marriage or regular partnerships among teenage women is of interest in several respects. Early marriage represents a potential health hazard because pregnancy prior to the attainment of full physical maturity involves elevated risks to the mother and the child. Early marriage may also jeopardize prospects of schooling for both partners and thwart the achievement of an independent income and a sense of autonomy among women. Lastly, it is conducive to high fertility.

TABLE 3. PERCENTAGE THAT REPORT NON-COHABITATION WITH SPOUSE OR REGULAR PARTNER, AMONG MEN AND WOMEN WHO ARE MARRIED OR HAVE A REGULAR PARTNER, SELECTED COUNTRIES, 1989-1991

Country or city	*Male*		*Female*	
	25-29	*15-49*	*25-29*	*15-49*
Côte d'Ivoire	47	43	26	36
Lusaka (Zambia)	35	31	18	26
Rio de Janeiro (Brazil)	34	25	36	24
Lesotho	29	31	25	24
Singapore	29	12	5	4
Kenya	26	20	20	20
United Republic of Tanzania	14	11	15	15
Sri Lanka	7	5	3	6
Manila (Philippines)	5	6	13	8
Thailand	3	4	16	13

Sources: WHO/GPA survey data; adapted from M. Caraël, "Sexual behaviour", in *Sexual Behaviour and Knowledge of AIDS in the Developing World*, J. Cleland and B. Ferry, eds. (London, Taylor and Francis, 1995), p. 103, table 4.4.

Table 4 shows the proportions married among adolescent women in developing countries that have conducted surveys under the auspices of the DHS programme. The definition of marriage used in these surveys is a broad one, encompassing both formalized and informal unions.[7] A great diversity in proportions married is immediately apparent. The proportion of women aged 15-19, who are or have been married ranges from 4 to 75 per cent in 38 countries with data available. Moreover, both extremes are found within a single region, Africa, which is sometimes characterized in terms of a ubiquitousness of early marriage among women. While early marriage is common in many countries, particularly those in Western Africa, marriage occurring in adolescence is uncommon in other parts of the continent.

In contrast with Africa, the countries of Central and South America exhibit remarkably little variation. In the late 1980s and early 1990s, the proportion of women aged 15-19, who were ever married falls within the narrow range of 11-26 per cent, with a mean value of 18.1 per cent.

The number of countries in Asia for which recent and comparable data on marriage are available is too small to permit generalization. Nevertheless, heterogeneity seems to prevail. India alone exhibits very marked geographical variations in the prevalence of early marriage. Although detailed results from the Indian National Family Health Survey, 1992-1993, are not yet available for the country as a whole, over 10 States have

TABLE 4. DISTRIBUTION OF SELECTED COUNTRIES IN AFRICA, ASIA AND LATIN AMERICA, BY PREVALENCE OF FEMALE ADOLESCENT MARRIAGE, 1986-1992

Percentage of ever married among women aged 15-19	*Year of survey*	*Africa*	*Year of survey*	*Asia*	*Year of survey*	*Latin America*
Under 10	1988	Botswana (6.1)	1987	Sri Lanka (6.9)		
	1987	Burundi (6.8)				
	1992	Namibia (7.7)				
	1992	Rwanda (9.8)				
	1988	Tunisia (4.4)				
10-19	1992	Egypt (15.5)	1991	Indonesia (19.8)	1999	Bolivia (14.3)
	1990	Jordan (10.6)	1987	Thailand (17.4)	1986	Brazil (14.7)
	1992	Morocco (12.6)			1990	Colombia (13.3)
	1989-1990	Sudan (15.9)			1987	Ecuador (19.2)
	1988-1989	Zimbabwe (19.8)			1987	Mexico (19.9)
					1990	Paraguay (15.4)
					1991-1992	Peru (10.7)
20-39	1988	Ghana (24.4)	1990-1991	Pakistan (24.9)	1991	DominicanRepublic(23.1)
	1993	Kenya (20.2)			1987	Guatemala (26.2)
	1986	Liberia (36.0)			1987	Trinidad and Tobago (24.6)
	1992	Madagascar (26.7)				
	1990	Nigeria (38.6)				
	1988	Togo (27.2)				
	1991-1992	United Republic of Tanzania (28.3)				
	1992	Zambia (29.6)				
40-49	1991	Cameroon (44.2)	1993-1994	Bangladesh (49.5)		
	1986	Senegal (43.5)				
	1988-1989	Uganda (40.8)				
50 or over	1987	Mali (75.4)				
	1992	Niger (58.6)				

Sources: *Marriage and Entry into Parenthood* (Columbia, Maryland, Macro International Inc. 1994); *Bangladesh Demographic and Health Survey, 1993-1994* (Dhaka, National Institute of Population Research and Training, and Mitra and Associates; Columbia, Maryland, Macro International, Inc., 1994).

NOTE: Figures in parentheses represent percentage ever married.

published the relevant data. In some, the proportions of ever married among women aged 15-19 are similar to the typical values found in Latin America (for example, 17 per cent (Orissa); 20 per cent (Himachal Pradesh); 22.5 per cent (Gujarat); and25 per cent (Tamil Nadu)). In others, the majority of women aged 15-19 are married, for instance, in Madhya Pradesh, 64 per cent, and in Andhra Pradesh, 53 per cent, (International Institute for Population Sciences, 1994).

For Europe, comparable information is not available because most data derived from civil registration are based on the more restricted definition of marriage as a legal contract. By this criterion, the prevalence of teenage marriage has been low for some time. Around 1980, less than 10 per cent of women aged 15-19 were legally married in the majority of European countries. Exceptions were found mainly in Eastern and Southern Europe, including Bulgaria, Hungary, Greece, Romania and Yugoslavia, where the prevalence of early marriage varied between 10 and 19 per cent. No European country recorded a value in excess of 19 per cent (United Nations, 1992, table 37).

Changes in the timing of first marriage around the world are well documented and it is clear that the age at first marriage among women has risen markedly in many countries (Dulaunay, 1994; United Nations, 1988b, 1989, 1990; Alan Guttmacher Institute, 1995; Population Reference Bureau, 1992a, 1992b; Robey, Rutstein and Morris, 1992). Nevertheless, the age at which marriages commonly occur and the proportions married at each age vary considerably between countries. Table 5 documents the increase in age at marriage in several developing countries by comparing the marriage experience of women aged 20-24 with that of women aged 40-44. Again, a broad definition of marriage is used. The proportion of women married by age 20 declines, and there are corresponding increases in the median age at marriage, in the younger cohort as compared with the older one. The shift towards later marriage is most pronounced in Asia: taking the average for the eight countries shows that 57 per cent of women currently aged 40-44 were first married before age 20; the corresponding figure for women aged 20-24 is 37 per cent. In Africa, the reduction in the prevalence of early marriage has been almost as sharp—from 72 to 55 per cent—but levels of teenage marriage remain higher than in Asia. On average, young women in Africa are as likely to marry before age 20 as Asian women were two decades ago.

In Latin America and the Caribbean, changes in the timing of first marriage have been less radical, with the level of early marriage falling by only 8 per cent, from 50 per cent among women aged 40-44 to 42 per cent among women aged 20-24. However, the main exceptions to postponement of marriage are found in this region, including Costa Rica, El Salvador, Guatemala, Jamaica, and Trinidad and Tobago, where the median age at marriage has declined and/or the proportion married before age 20 has been rising.

Data on trends in age at first marriage for the developed countries are not comparable with those for developing countries because they are usually derived from civil registration systems and reflect only legal marriage. The difference should be borne in mind in the interpretation of the trends shown in table 6. The dominant impression is that age at first marriage among women has risen during the past 20 years. This observation holds without exception for Japan and countries in Western Europe. In 1970, the typical average age at first marriage ranged from 22 to 24 years. By 1990, the range had risen to 24-27 years. In many countries in Northern Europe, there has been a similar pronounced shift towards postponement of legal marriage. However, the Baltic States of Estonia and Latvia are exceptions.

In Eastern and Southern Europe, changes in age at marriage have been more modest. In Eastern Europe, mean ages at marriage for women were lower than in other parts of Europe and have remained stable, thus their differences with those in Northern and Western Europe have widened appreciably. Southern Europe, on the other hand, recorded rather late ages at first marriage in 1970, most notably in Italy, Spain and Portugal. Since that time, there have been small increases in some countries and little or no change in others.

Interpretation of trends in ages at first marriage among women in European countries and of subregional differences is complicated by the prevalence of cohabitation outside marriage and the existence of consensual unions. To some extent, postponement of legal marriage has been accompanied by a rise in less formal unions, a topic discussed in the next section.

From the perspective of both reproductive health and fertility, the timing of marriage among women is more important than among men. For this reason, male nuptiality has been studied less intensively than in women. However, a United Nations study (1990) has

TABLE 5. MEDIAN AGE AT FIRST MARRIAGE AND PERCENTAGE OF WOMEN MARRIED BEFORE AGE 20 AMONG RESPONDENTS AGED 20-24 AND 40-44 AT THE TIME OF SURVEY, SELECTED DEVELOPING COUNTRIES

Region and country	Year of survey	Median age at first marriage		Percentage married before age 20	
		20-24	40-44	20-24	40-44
Africa					
Botswana	1988	..	23.5	19	33
Burundi	1987	20.5	19.4	44	58
Cameroon	1991	..	..	73	85
Egypt	1988-1989	20.8	17.8	46	67
Ghana	1988	18.7	17.6	63	77
Kenya	1989	19.8	17.4	52	75
Liberia	1986	18.2	16.0	64	81
Mali	1987	15.9	15.6	92	90
Morocco	1987	..	16.8	36	78
Namibia	1992	..	..	20	28
Niger	1992	..	..	90	94
Nigeria	1990	17.8	16.8	68	71
Senegal	1986	..	..	70	86
Sudan	1989-1990	..	15.8	37	78
Togo	1988	18.6	18.0	63	69
Tunisia	1988	..	19.4	21	54
Uganda	1988-1989	17.8	16.6	73	83
United Republic of Tanzania	1991-1992	..	..	61	76
Zambia	1992	..	..	64	81
Zimbabwe	1988-1989	19.7	18.1	53	69
Asia					
China	1987-1988	..	..	20	48
Indonesia	1987	19.8	16.4	51	80
Jordan	1990	..	18.9	30	62
Pakistan	1990-1991	..	18.5	49	61
Philippines	1993	..	..	29	38
Sri Lanka	1987	..	21.4	28	41
Thailand	1986	22.9	20.2	37	48
Turkey	1988	..	..	50	75
Latin America and the Caribbean					
Belize	1981	21.0	20.1	44	50
Bolivia	1989	21.4	20.7	41	43
Brazil	1986	21.5	20.7	40	44
Colombia	1990	21.8[a]	20.9	37	42
Costa Rica	1986	18.7	21.0	40	39
Dominican Republic	1991	19.2	18.4	47	63
Ecuador	1987	20.7	19.9	44	51
El Salvador	1985	..	19.3	59	58
Guatemala	1987	18.9	19.1	60	56
Haiti	1989	..	..	15	..
Jamaica	1989	16.2	17.9	39	65
Mexico	1987	20.9	19.7	44	53
Paraguay	1990	..	20.6	41	44
Peru	1991-1992	23.3[a]	20.6	31	45
Trinidad and Tobago	1987	19.7	19.8	53	52

Source: Bryant Robey and others, *The Reproductive Revolution: New Survey Findings,* Population Reports, Series M, No. 11 (Baltimore, Maryland, The Johns Hopkins School of Hygiene and Public Health, Population Information Program, 1992).

[a]Estimate from Demographic and Health Surveys carried out in 1988.

TABLE 6. MEAN AGE OF WOMEN AT FIRST MARRIAGE, JAPAN AND SELECTED COUNTRIES OF EUROPE AND NORTHERN AMERICA, 1970-1992

Region and country	*1970*	*1975*	*1980*	*1985*	*1990*	*1992*
Asia						
Japan	24.2	27.4	25.2	25.5	25.9	26.0
Eastern Europe						
Bulgaria	21.7	21.8	21.7	21.9	21.7	21.9
Czech Republic	21.6	21.6	21.5	21.6	21.5	..
Hungary	21.2	20.8	21.3	21.3	21.5	21.6
Poland	21.9	20.8	21.3	21.3	21.5	21.6
Romania	..	21.5	22.0	22.0	22.0	22.1
Russian Federation						
Slovakia	22.2	22.5	22.7	22.8	22.0	21.2
Northern Europe						
Denmark	22.8	23.7	24.8	26.3	27.6	28.2
Estonia	24.8	24.0	23.2	23.2	23.0	..
Finland	23.0	23.5	24.5	25.4	26.5	26.9
Iceland	23.2	22.7	23.2	24.9	26.1	..
Ireland	24.8	24.4	24.1	25.0	25.9	..
Latvia	..	..	..	22.7	22.2	22.4
Norway	22.7	22.9	23.6	24.4	26.2	..
Sweden	24.0	25.1	26.4	27.5	27.6	27.8
United Kingdom	22.4	22.8	23.0	23.8	25.2	..
Southern Europe						
Bosnia and Herzegovina	..	..	22.0	22.4	23.3	..
Croatia	21.8	22.1	22.4	22.6	23.2	..
Greece	22.9	22.8	22.3	22.8	23.8	24.4
Italy	24.1	24.0	24.1	24.5	25.6	..
Malta	..	..	24.7	22.5	..	..
Portugal	24.3	23.7	23.3	23.6	24.2	24.5
San Marino	22.6	22.1	24.1	24.8	24.9	25.1
Slovenia	23.6	22.2	22.3	21.3	23.6	24.1
Spain	24.7	23.4	23.4	24.2	25.3	..
Former Yugoslavia[a]						
Macedonia	..	..	22.2	22.4	22.8	..
Montenegro	..	..	23.1	23.4	24.2	..
Serbia	..	..	23.0	23.2	23.7	..
Western Europe						
Austria	23.1	22.8	23.1	24.0	25.1	25.7
Belgium	22.4	21.6	22.3	23.1	24.6	24.9
France	22.4	22.5	23.0	24.3	24.7	26.1
Germany (former FRG)[b]	23.0	22.7	23.4	24.6	25.9	26.5
Germany (former GDR)[b]	21.9	21.3	21.3	22.2	23.7	25.1
Liechtenstein	23.1	25.1	25.6	26.0	..	..
Luxembourg	23.2	23.3	23.0	24.1	25.4	25.9
Netherlands	22.8	22.6	23.1	24.4	25.9	26.6
Switzerland	24.2	24.3	25.2	26.1	27.0	27.3
Northern America						
Canada	22.7	22.5	23.3	24.6	26.1	..
United States of America	20.6	20.8	21.8	23.0	..	..

Source: Japan, Ministry of Health and Welfare, *Latest Demographic Statistics, 1995* (Tokyo, 1995), table B12; Council of Europe, *Recent Demographic Developments in Europe, 1994* (Strasbourg, France, 1994), table 2.3.

[a]Unless otherwise indicated, data for Yugoslavia shown in the present publication for the period beginning 27 April 1992 refer to the Federal Republic of Yugoslavia in terms of its boundaries as they exist from that date. Data for the period prior to 27 April 1992 refer to the former Socialist Federal Republic of Yugoslavia in terms of its boundaries as they existed prior to that date.

[b]Through accession of the German Democratic Republic (GDR) to the Federal Republic of Germany (FRG) with effect from 3 October 1990, the two German States have united to form one sovereign State. As from the date of unification, the Federal Republic of Germany acts in the United Nations under the designation "Germany". For some statistical data that predate the unification, it has been necessary to refer occasionally to the former States of the Federal Republic of Germany and the German Democratic Republic.

compared the average age at marriage for both sexes from census and survey data for a wide range of countries. In sub-Saharan Africa, a striking feature of marriage patterns is the large difference between women and men in the mean age at marriage. The largest differences are found in Western African countries, where they range from six to nine years. The smallest difference in average age at first marriage between men and women in Africa was found in South Africa, 2.1 years. Differences between the sexes have begun to narrow over time in many countries in Africa, especially in Northern Africa, and in many countries in Latin America and the Caribbean, and Asia. Convergence tends to be most marked in countries where differences in the past were largest. In Northern America and Europe, differences between the sexes have traditionally been smaller than in other regions, and in recent decades the gaps have contracted further (United Nations, 1990). As a broad generalization, the United Nations study suggests a global trend towards greater sexual equality in the timing of first marriage for men and women.

2. Cohabitation

In societies where there is a long and well-established tradition of legal registration of marriage, a precise distinction can be made between legal marriage and consensual or cohabiting unions. For this reason, cohabitation can be studied most easily in Europe and Northern America. As already discussed, young people in many of the countries in those regions have shown over the past 20 years an increasing disinclination to marry, but this trend has coincided with increases in the proportions of young men and women cohabiting. Data for the United Kingdom of Great Britain and Northern Ireland reveal that cohabiting unions tend to last for an average of two years, and either convert into marriage or dissolve (Kiernan and Estaugh, 1993). Cohabitation may thus be a prelude or an alternative to marriage. A United Nations (1988b) study on adolescent reproductive behaviour in developed countries shows that, in many countries, increases in the proportions of persons aged 18-19 who are cohabiting have more than offset declines in the numbers exposed to regular sexual activity within marriage. However, the prevalence of cohabitation in industrialized countries among young people varies widely. In Denmark and Sweden, 23 per cent and 16 per cent, respectively, of young people aged 18-19 are reported to have cohabited between the mid-1970s and mid-1980s. In Norway and the United States of America, the corresponding proportions were lower, at approximately 3 per cent (United Nations, 1988b).

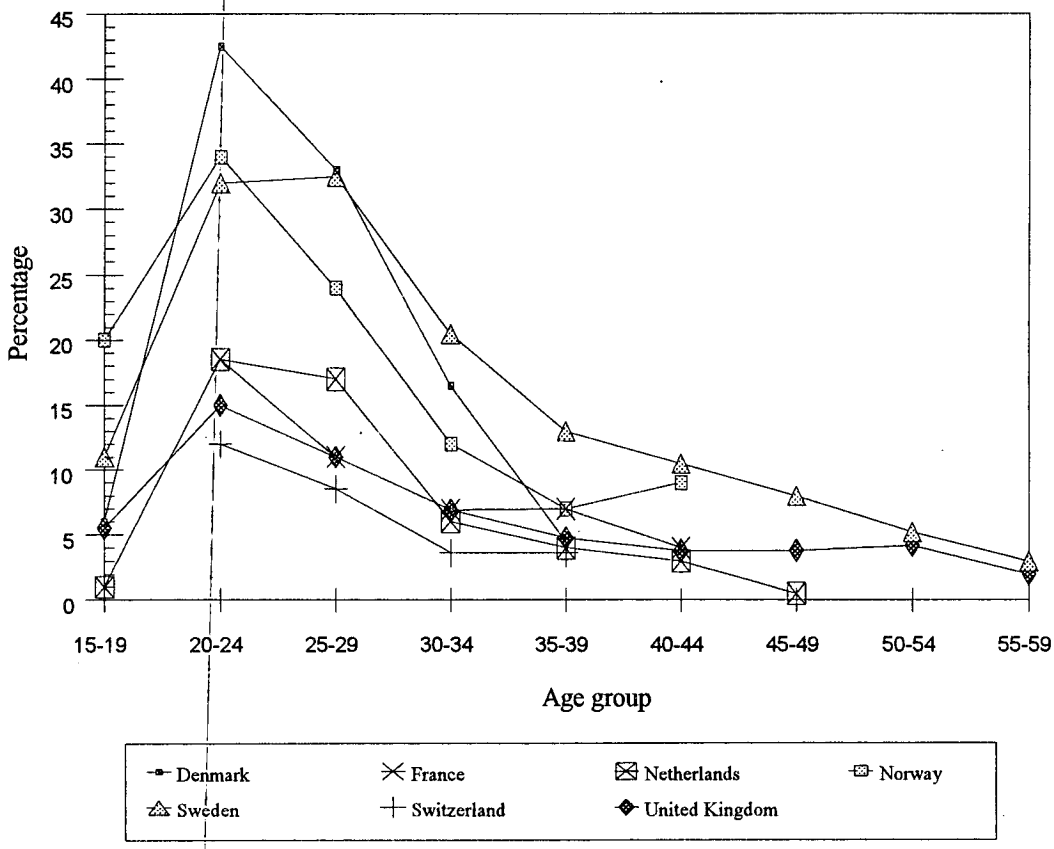
Figure 2 shows age-specific proportions of women who were living in consensual unions for seven countries in Europe. At ages 15-19, those proportions range between nearly zero and 20 per cent. The prevalence peaks at ages 20-24, with a range of approximately 10-40 per cent, and declines thereafter.

The major reason for the decline in cohabitation after age 25 is, the growing dominance of legal marriage, as shown in table 7, which displays consensual unions as a percentage of all unions, including marriage. At ages 15-19, most men and women are not in any type of cohabiting union; but among those that are, consensual unions account for a substantial fraction. The highest figures are found in Sweden, Norway and the Netherlands; where the prevalence of informal unions outweighs that of legal marriage. In Austria, Finland and the United Kingdom, marriage and consensual unions are equally common. In the former Federal Republic of Germany and France, about one third of unions among ages 15-19 are consensual. Lastly, Hungary and Italy show low proportions of consensual unions.

From age 20, the ratio of consensual to marital unions declines steeply in all countries; among age group 30-44, for instance, legal marriages typically account for 90 per cent or more of all unions. Marriage thus remains the norm in Europe at peak childbearing ages. The major exception is Sweden, where consensual unions persist much more strongly among older age groups.

In many developing countries, it is much more difficult to enforce a clear-cut distinction between marriage and consensual cohabitation, because marriage itself is often sanctified not by legal registration but by religious or social ceremonies. Throughout much of Asia and Northern Africa, sexual access is closely controlled and the vast majority of unions conform to the Western concept of marriage. In sub-Saharan Africa, the complexity of different types of partnership is inadequately represented by censuses or large-scale surveys. In Latin America and the Caribbean, the distinction between legal marriage and other types of union is more widely accepted.

Figure 2. Proportion of women living in a consensual union, by age group, selected countries in Europe, 1985-1990



Source: European Commission, *The Demographic Situation in the European Union: 1994 Report* (Strasbourg, France, 1994), graph 21.

TABLE 7. CONSENSUAL UNIONS AS A PERCENTAGE OF ALL UNIONS, AROUND 1985, SELECTED COUNTRIES IN EUROPE

	Age group										
Country	*15-19*	*20-24*	*25-29*	*30-34*	*35-39*	*40-44*	*45-49*	*50-54*	*55-59*	*60-64*	*All ages*
Austria	45.4	18.7	5.9	3.9	3.2	2.9	2.1	2.0	1.5	2.2	4.2
France	35.8	14.0	10.1	6.0	5.5	..	..	..	..	..	8.8
Finland	49.7	..	23.9	11.6	7.1	..	3.7	..	3.7	..	11.4
Germany[a]	30.0	..	6.2	..	2.0	..	2.0	..	1.9	..	4.7
Hungary	8.2	3.3	2.4	2.7	2.9	2.9	3.1	2.7	2.7	3.0	2.9
Italy	4.2	2.1	1.8	1.6	1.1	1.1	1.0	1.0	1.1	1.4	1.4
Netherlands	63.0	36.3	15.9	6.7	4.0	2.2	2.1	1.8	2.3	1.8	7.7
Norway	75.0	47.0	23.0	12.0	7.0	..	3.0	..	3.0	..	10.8
Sweden	92.7	77.1	48.1	29.6	19.2	13.0	10.2	8.7	5.9	4.7	19.9
United Kingdom	50.4	29.0	12.8	6.8	4.3	3.7	2.8	1.5	0.9	1.2	6.2

Source: European Commission, *The Demographic Situation in the European Union, 1994 Report* (Luxembourg, Office for Official Publications of the European Communities, 1995), table 18.

[a]The former Federal Republic of Germany.

3. *Women's education, residence and age at first marriage*

Increased female education, urbanization and women's employment in the modern sector are often posited as determinants of the widespread shift towards later age at marriage among women. A substantial body of relevant literature exists (Bledsoe and Cohen, 1993; Meekers, 1993; Westoff, Blanc and Nyblade, 1994). Analysis of age at marriage among women by education (see table 8) shows striking differences between those with no education and those with at least 10 years of education. In most countries, there is a general trend towards later age at marriage with increased educational level, but the relationship is not linear. Rather, the effect of the length of schooling on age at marriage is much stronger at more advanced levels of schooling than at primary school levels. For the 10 sub-Saharan African countries, the difference on average in age of marriage between women with no schooling and those with 1-3 years amounts to

TABLE 8. MEDIAN AGE AT FIRST MARRIAGE,[a] BY WOMEN'S EDUCATION

Region and country	*All education categories*	*Years of education*					*Median-age difference (in years) between 0 and 10+ categories*
		0	*1-3*	*4-6*	*7-9*	*10+*	
Sub-Saharan Africa							
Botswana	25.3	23.7	22.8	23.6	27.2	26.6	2.9
Burundi	20.0	19.8	20.2	20.3	(21.7)	(22.7)	2.9
Ghana	18.4	17.8	18.0	17.9	18.4	20.0	2.2
Kenya	18.8	17.0	17.3	18.1	19.6	22.2	5.2
Liberia	17.8	16.9	17.6	18.7	19.6	21.7	4.8
Mali	15.7	15.7	15.6	16.0	17.0	(19.3)	3.6
Senegal	16.8	16.2	18.7	20.3	21.3	23.9	7.7
Togo	18.6	17.8	18.7	19.5	21.5	23.4	5.6
Uganda	17.4	16.6	16.9	17.7	18.7	22.6	6.0
Zimbabwe	19.1	17.2	17.7	18.3	19.4	22.4	5.2
Northern Africa							
Egypt[b]	19.5	17.4	17.8	19.8	22.4	24.2	6.8
Morocco[b]	19.8	18.7	21.9	23.3	26.4	26.1	7.4
Tunisia[b]	22.1	20.6	22.4	22.9	24.7	24.5	3.9
Asia							
Indonesia[b]	18.4	16.2	16.4	18.0	21.7	23.2	7.0
Sri Lanka[b]	22.9	21.0	20.9	21.3	23.1	25.2	2.3
Thailand[b]	20.8	18.8	19.4	20.2	21.6	25.8	5.0
Latin America and the Caribbean							
Bolivia	20.6	20.0	19.6	20.0	20.1	23.0	3.0
Brazil	21.3	19.4	19.6	20.5	21.6	25.0	6.4
Colombia	21.2	18.4	19.6	20.6	21.7	26.3	7.9
Dominican Republic	19.2	16.4	17.1	17.8	19.7	23.3	6.9
Ecuador	20.4	18.6	18.7	19.4	20.2	23.5	4.9
El Salvador	19.1	17.8	18.2	18.9	19.8	22.7	4.9
Guatemala	18.8	17.7	18.4	19.8	20.7	23.8	6.1
Mexico	20.3	17.2	18.2	19.7	22.1	24.1	6.9
Peru	21.0	18.7	18.7	19.9	20.6	24.9	6.2
Trinidad and Tobago	19.7	(17.9)	17.7	18.7	19.0	20.8	2.9

Source: *Women's Education and Fertility Behaviour: Recent Evidence from the Demographic and Health Surveys* (United Nations publication, Sales No. E.95.XIII.23), table 19.

NOTES: These are life-table estimates. Numbers within parentheses are based on fewer than 100 cases.

[a]Marriage including any type of union.

[b]Ever-married sample. Estimates for all women are derived by applying a multiplication factor based on information from the household questionnaire.

0.48 years. A further three years of schooling is associated with an increase in marriage age of 0.69 years, and the next increment in schooling (from 4-6 to 7-9 years) results in a further rise of 1.40 years in median age at marriage. The largest effect of schooling is observed at the top end of the educational spectrum. Women in the 10 sub-Saharan African countries with 10 or more years of schooling report, on average, a marriage age of 22.48 years, 2.04 years higher than the marriage age of those with 7-9 years of schooling.

In three countries of Asia, the effect of modest exposure to education is negligible. However, the median age at marriage increases by one year, on average, for women who have completed primary education compared with women with no education. The median age increases by a larger margin for women who have completed schooling beyond primary level. The largest effect of schooling is observed for women who have had 10 or more years of schooling; the difference in median age at marriage between women who have completed the highest level of schooling and women with no education ranges from four to seven years.

In Latin America and the Caribbean, a very similar pattern is apparent. At successive increases in length of schooling, the corresponding rises in marriage ages are 0.37, 0.95, 1.02 and 3.19 years. In both regions, therefore, even a modest exposure to primary school leads to postponement of marriage but the effect becomes progressively more pronounced with the transition from primary to secondary and then to tertiary education.

Urban or rural residence represents a further influence on marriage age for women. Women living in urban areas typically marry later than their rural counterparts. No doubt there are many possible reasons for this difference, including better schooling and employment opportunities in towns and cities. Table 9 summarizes the link between residence and age at first marriage and at first birth for women for 36 developing countries, by showing the percentage who married before age 20. Burundi is the single exception to the general result that urban women are less likely than rural women to marry early. However, the magnitude of the rural/urban gap varies greatly. In Botswana, Mali, Jordan, Bolivia, and Trinidad and Tobago the differences are small. More typically, there is a 20 per cent or larger difference in the proportion marrying by age 20. This category includes countries in sub-Saharan Africa (for example, Nigeria, Senegal and Uganda), in Northern Africa (for example, Egypt), in Asia (for example, Indonesia and Thailand) and in Latin America and the Caribbean (for example, Mexico and Peru). Thus, there appears to be no regional patterning on residential differences in marriage age.

4. Conclusion

The dominant conclusion emerging from this review is that a worldwide trend towards later marriage is taking place. Delays in the timing of marriage have played a key role in the fertility decline in many countries, because most births continue to occur within marriage (Westoff, 1992; Population Reference Bureau, 1992a). For instance, in Morocco and the northern Sudan the rise in age at marriage explains more of the fertility decline than the increased use of contraception. In the northern Sudan less than 7 per cent of married women aged 15-24 use contraception; nevertheless, the teenage fertility rate has fallen by 40 per cent, and by 31 per cent among women aged 20-24. Much of the decline is attributed to the increase in age at marriage (Robey, Rutstein and Morris, 1992).

Increases in age at marriage do not necessarily translate into the shortening of the reproductive lifespan. Premarital births are increasing in a number of countries around the world, and the prevalence of sexually transmitted diseases among unmarried adolescents suggests that premarital sexual activity is common and may be increasing. Medical problems associated with young people's sexual behaviour represent a major health burden and are likely to be worse among the unmarried population. The social and economic problems of young unmarried women who take their pregnancy to term may also be severe. The following section brings together international data on the sexual behaviour of young people in an attempt to provide a better foundation for understanding their reproductive health needs.

C. Sexual activity before marriage

The timing and circumstances of first sexual intercourse before marriage are of interest for a number of reasons. The timing marks the onset of the risk of childbearing and exposure to health hazards, while the circumstances may have implications for future sexual behaviour. The growing body of DHS, YARHS and WHO/GPA survey data reveals that sexual behaviour

TABLE 9. AGE AT FIRST MARRIAGE AND FIRST BIRTH, BY URBAN/RURAL RESIDENCE

Region and country	*Percentage married by exact age 20*	*Percentage giving birth by exact age 20*
Sub-Saharan Africa		
Botswana		
Urban	26.1	54.2
Rural	28.4	56.8
Burundi		
Urban	57.6	47.4
Rural	53.2	34.0
Cameroon		
Urban	71.2	60.1
Rural	83.6	67.9
Ghana		
Urban	63.0	46.5
Rural	72.1	58.1
Kenya		
Urban	51.9	51.5
Rural	67.4	66.9
Liberia		
Urban	61.0	60.9
Rural	74.6	55.9
Madagascar		
Urban	43.6	39.4
Rural	66.2	60.6
Mali		
Urban	88.1	59.6
Rural	92.3	61.8
Namibia		
Urban	82.7	64.5
Rural	95.2	71.8
Nigeria		
Urban	54.2	43.7
Rural	75.8	55.7
Rwanda		
Urban	32.5	23.6
Rural	46.9	30.0
Senegal		
Urban	64.1	49.3
Rural	87.1	67.3
Sudan		
Urban	46.1	34.9
Rural	61.5	45.1
United Republic of Tanzania		
Urban	59.2	59.3
Rural	69.3	61.2
Togo		
Urban	53.0	45.5
Rural	74.7	63.5
Uganda		
Urban	58.3	59.2
Rural	79.1	69.9
Zambia		
Urban	67.6	64.1
Rural	78.6	70.1
Zimbabwe		
Urban	54.4	50.3
Rural	66.9	56.9
Northern Africa		
Egypt		
Urban	42.7	29.7
Rural	72.9	52.5
Morocco		
Urban	38.8	23.8
Rural	56.3	34.8
Tunisia		
Urban	29.4	17.0
Rural	41.9	24.6
Asia		
Indonesia		
Urban	50.1	35.5
Rural	72.6	51.7
Jordan		
Urban	45.3	33.1
Rural	49.9	34.6
Pakistan		
Urban	51.7	34.6
Rural	60.2	38.6
Sri Lanka		
Urban	23.6	15.0
Rural	34.2	22.5
Thailand		
Urban	27.6	16.3
Rural	48.5	30.3
Latin America and the Caribbean		
Bolivia		
Urban	43.8	36.0
Rural	48.9	44.0
Brazil[a]		
Urban	36.3	27.0
Rural	47.4	34.2
Colombia		
Urban	36.7	27.9
Rural	45.9	38.9

TABLE 9 (*continued*)

Region and country	*Percentage married by exact age 20*	*Percentage giving birth by exact age 20*	*Region and country*	*Percentage married by exact age 20*	*Percentage giving birth by exact age 20*
Dominican Republic			Paraguay		
Urban	48.4	35.3	Urban	36.2	27.5
Rural	67.9	53.4	Rural	50.7	44.8
Ecuador			Peru		
Urban	44.1	34.4	Urban	32.9	27.7
Rural	53.8	46.2	Rural	58.5	51.2
Guatemala[a]			Trinidad and Tobago		
Urban	49.7	40.4	Urban	52.9	32.3
Rural	69.0	57.9	Rural	56.2	50.0
Mexico					
Urban	43.9	34.9			
Rural	65.2	53.4			

Source: Charles F. Westoff, Ann K. Blanc and Laura Nyblade, *Marriage and Entry into Parenthood*, Demographic and Health Surveys Comparative Studies, No. 10, (Columbia, Maryland, Macro International, Inc., 1994), p. 29, table 6.2.

[a]Women aged 20-24.

among young people varies widely. In some areas of the world intercourse begins early and is frequently premarital, while in others it is dictated by strong social sanctions and commonly coincides with marriage, although marriage may occur at a very early age. The present section concentrates on the sexual behaviour of young people prior to marriage, although sexual behaviour within marriage is assessed, where appropriate.

Caldwell, Caldwell and Quiggin (1989) question the validity of standardized sexual behaviour surveys on the grounds that they are prone to misreporting and bias. However, Dare and Cleland (1994) are cautiously optimistic that information obtained from most surveys is of a quality that allows broad conclusions to be drawn about sexual and reproductive behaviour. Despite the paucity of systematic data and the variability in sexual behaviour of young people, three broad patterns of adolescent sexual and reproductive behaviour have been identified (Senderowitz and Paxman, 1985; World Health Organization, 1986b; Senanyake, 1990). The first pattern is common in Asia and is characterized by marriage at an early age, followed by early childbearing. The proportion of adolescent mothers is high. Premarital sexual activity is uncommon, as are premarital pregnancy and childbirth. Contraceptive use is increasing. Abortion is often illegal and available only by resort to unsafe procedures. The incidence of sexually transmitted diseases is high in some areas, with subsequent infertility problems. The second pattern is generally representative of the developed world. Initiation of sexual activity is frequently premarital and occurs from the middle to the late teens. Age at marriage is generally late. The incidence of premarital pregnancies is high. Abortion is legal and common but not in all countries. Contraceptive use is frequent and fertility is low. A relatively high rate of transmission of sexually transmitted diseases exists. The third pattern is intermediate or transitional. It is found particularly in urban settings in developing countries, where lifestyles are rapidly changing owing to socio-economic development. Sexual initiation is increasingly premarital, as is pregnancy. Age at marriage and age at first birth are, in general, rising. Fertility is beginning to decline and contraceptive use is increasing. These models fail to account for the behaviour observed among young people in Africa. The first model is the best fit for patterns of sexual and reproductive behaviour in Africa barring an important difference, namely that premarital sexual activity is common in the region.

1. *Initiation of sexual activities among adolescents*

Comparable information on the sexual behaviour of women aged 15-19 is available from the DHS programme. Survey data from sub-Saharan Africa and Latin America and the Caribbean, presented in table 10, document the wide variation in sexual experience among women aged 15-19. While almost absent in Burundi,

premarital sexual activity is common in Botswana, where 60 per cent of never-married women report sexual experience. Marriage in this context is defined as any consensual union, formal or informal, including visiting relations. The dominant impression is that most sexual activity takes place within marriage. In only 4 of the 23 countries presented in table 10 do sexually experienced single women outnumber those who declare themselves inexperienced; and in nearly 50 per cent of all countries, less than 10 per cent fall in the category of "single with sexual experience". In Asia, evidence is sparse but studies in Manila (Philippines), Singapore and Thailand indicate that first sexual intercourse coincides with marriage for the majority of young women (Caraël, 1995), or is a prelude to marriage.

Some studies report a decline in age at first sexual intercourse (Senderowitz, 1995; Wellings and others, 1994; Liskin and others, 1985; Senderowitz and Paxman, 1985; United Nations, 1988b). In the United States, the median age at first intercourse dropped from 18.7 years in 1971 to 17.9 years in 1982 (Jones and others, 1986). Wellings and others (1994; 1995), through a recent survey conducted in the United Kingdom on sexual attitudes and behaviour, also document a dramatic decline in age at first intercourse. Over the past 40 years, for women it fell by 4 years to 17 years of age, while for males it fell by 3 years to 17 years of age. An increase in the proportion of young men and women who had experienced sexual intercourse before age 16[8] was also observed (see table 11). A similar trend has occurred in the Netherlands; in Sweden, 94 per cent of women in the youngest cohort surveyed (1956-1960) had had intercourse by age 20, compared with 68 per cent of women born over the period 1936-1940. The median age at first intercourse decreased from 19 to 16.7 years (Jones and others, 1986). The United Nations study (1988b) reports that trends towards earlier sexual initiation and increases in the proportion of adolescents who are sexually active are similar in most developed countries.

Evidence regarding trends in age at first intercourse is less conclusive for developing countries. While sexual activity is initiated at a very early age in many African countries (Gage-Brandon and Meekers, 1993), table 12 suggests a general decline in the proportion of women that report sexual activity by age 15 in Burundi, Ghana, Kenya and Zimbabwe. In Liberia, Malawi and Togo, the proportions sexually experienced before age 15 have remained relatively stable. A survey conducted in a rural area of the United Republic of Tanzania, however, documents a fall in the mean age at first intercourse from 16.8 among males aged 40-49 to 13.8 among those aged 15-19 (Konings and others, 1994).

Trends in sexual activity in Latin America and the Caribbean (among the married and unmarried) are not uniform. In Colombia, the Dominican Republic, Mexico, Peru, and Trinidad and Tobago, the proportion of women sexually active before age 20 appears to have

TABLE 10. PERCENTAGE DISTRIBUTION OF TEENAGE WOMEN AGED 15-19, BY MARITAL AND SEXUAL EXPERIENCE STATUS, SELECTED DEVELOPING COUNTRIES

Region and country	*Date*	*Marital status/sexual experience*		
		Ever married[a]	*Single, sexually experienced*	*Single, no experience*
Sub-Saharan Africa				
Botswana	1988	6	60	34
Burundi	1987	7	2	91
Ghana	1988	24	26	50
Kenya	1989	20	26	54
Liberia	1986	36	46	18
Mali	1987	75	1	24
Nigeria	1990	39	16	45
Senegal	1986	44	56	0
Togo	1988	27	37	36
Uganda	1988/89	41	22	38
Zimbabwe	1988/89	20	12	68
Latin America and the Caribbean				
Costa Rica	1990	18	11	71
Guatemala	1987	24	5	71
Mexico	1987	18	3	79
Bolivia	1989	12	13	76
Brazil	1986	13	6	81
Colombia	1986	12	7	81
Paraguay	1987	17	12	71
Peru	1986	12	6	80
Dominican Republic	1992	17	6	80
Haiti	1989	15	8	77
Jamaica	1989	20	35	45
Trinidad and Tobago	1982	20	2	78

Sources: Population Reference Bureau, *Adolescent Women in Sub-Saharan Africa: A Chartbook on Marriage and Childbearing, 1986-1991* (Washington, D.C., 1992), Demographic and Health Survey (DHS) data collected between 1986 and 1991, p. 11, chart 7; Population Reference Bureau, *Adolescent Sexual Activity and Child-bearing in Latin America and the Caribbean: Risks and Consequences* (Washington, D.C., 1992), DHS data for Central America, Latin America and the Caribbean collected between 1985 and 1989, p. 10, figure 7.

[a]Refering to any consensual union, formal or informal, including visiting marriage.

fallen. In Brazil, Ecuador, El Salvador and Guatemala proportions have remained relatively stable (see table 13). No clear trends towards an earlier sexual debut are evident from these DHS data. To the contrary, age at first intercourse appears to be increasing in some countries.

TABLE 11. AGE AT FIRST INTERCOURSE, BY AGE GROUP AT INTERVIEW: UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND, 1990-1991

	Women			*Men*		
Age group at interview	*Median age at first intercourse*	*Percentage reporting first intercourse before age 16*	*Number*	*Median age at first intercourse*	*Percentage reporting first intercourse before age 16*	*Number*
16-19	17	18.7	971	17	27.6	827
20-24	17	14.7	1 251	17	23.8	1 137
25-29	18	10.0	1 519	17	23.8	1 126
30-34	18	8.6	1 349	17	23.2	1 012
35-39	18	5.8	1 261	18	18.4	982
40-44	19	4.3	1 277	18	14.5	1 042
45-49	20	3.4	1 071	18	13.9	827
50-54	20	1.4	933	18	8.9	684
55-59	21	0.8	716	20	5.8	603

Source: K. Wellings and others, *Sexual Behaviour in Britain* (Harmondsworth, United Kingdom, Penguin Books, 1994), p. 419, table 1.

TABLE 12. PERCENTAGE OF WOMEN WHO REPORT SEXUAL INTERCOURSE BY AGE 15, BY AGE GROUP, SELECTED AFRICAN COUNTRIES

	Evidence of decline				*Little or no change*		
Current age group	*Burundi*	*Ghana*	*Kenya*	*Zimbabwe*	*Liberia*	*Malawi*	*Togo*
15-24	1.3	14.4	16.1	7.8	37.3	24.2	23.0
25-34	2.5	20.7	27.1	15.6	34.0	23.9	28.2
35-49	2.8	18.4	28.1	21.7	38.0	24.4	22.5

Source: DHS data presented in Dominique Meekers, *Sexual Initiation and Premarital Childbearing in Sub-Saharan Africa*, DHS Working Paper, No. 5 (Columbia, Maryland, Macro International, Inc., 1993), p. 21, table A.1.

TABLE 13. PERCENTAGE OF WOMEN WHO HAD THEIR FIRST SEXUAL RELATIONSHIP BEFORE AGE 20, BY COHORT

	Evidence of decline					*Little or no change*			
Age group	*Colombia*	*Dominican Republic*	*Mexico*	*Peru*	*Trinidad and Tobago*	*Brazil*	*Ecuador*	*El Salvador*	*Guatemala*
20-24	49.8	53.5	45.7	48.0	56.3	49.5	50.9	62.8	62.7
25-29	54.2	60.2	52.2	55.5	54.9	50.9	60.4	64.5	63.1
30-34	53.0	67.2	56.6	56.0	58.4	45.2	58.6	60.2	64.1
35-39	55.8	70.4	48.8	60.4	60.3	45.7	57.0	64.4	65.7
40-44	64.6	74.5	53.9	63.6	61.6	50.5	55.3	63.2	58.8

Source: DHS data presented in Susheela Singh and Deirdre Wulf, *Today's Adolescents - Tomorrow's Parents: A Portrait of America* (New York and Washington, D.C., Alan Guttmacher Institute, 1990), p. 37, figure 4.7.

2. *Initiation of sexual activities and age at marriage*

For industrialized countries, the clearly documented rises in legal marriage age accompanied by declines in age at sexual debut imply large increases in the prevalence of premarital sexual activity, although it remains much less certain whether sexual activity with casual or ephemeral partners has increased. Results from developing countries are less clear-cut. Defining marriage by duration of partnership—12 months or more—the WHO/GPA surveys obtained trend data on the proportions of ever-married men and women who were not sexually experienced at their first marriage. Table 14 shows that the proportion of women reporting first sexual experience with a spouse has declined over time in most countries. However, there appears to be a slight increase in the proportion of women in the youngest cohort who were not sexually experienced at marriage in Kenya, Rio de Janeiro (Brazil) and Thailand. Interestingly, these areas are also those experiencing high prevalence of HIV infection. Surprisingly, and contrary to the trend observed among women, data for men reveal a clear increase in the proportions of men that were not sexually experienced at marriage, or in first regular partnership, suggesting a pronounced fall in premarital sexual activity in Côte d'Ivoire, Kenya, Lusaka (Zambia), Manila (Philippines) and Rio de Janeiro (Brazil) over time. In Kenya, for instance, only 5 per cent and 6 per cent of older men report that they were not sexually experienced at marriage or in first regular partnership, but this figure increases to 15 per cent among men aged 25-29. A recent decline in premarital sexual activity among males is also evident in Thailand and the United Republic of Tanzania. Premarital sexual activity is less common among women, in all age groups, than among men, especially in Asian populations. Even in the sub-Saharan African countries surveyed by WHO/GPA, where premarital sexual activity is often assumed to be common, over 50 per cent of women reported virginity at marriage, except in Kenya, where only 31 per cent were not sexually experienced. While these results undoubtedly reflect the broad definition of marriage, they challenge the assumption that casual sexual activity among the single population is increasing; rather, they suggest that more formal marriage is, perhaps, being replaced by other types of sexual partnership.

While proportions married in age cohort 15-24 are clearly declining in many countries, the proportions engaging in sexual activity do not appear to be undergoing similar changes. In some countries, premarital sexual activity is believed to be increasing (Hoffman, 1984; Meekers, 1993; Senderowitz and Paxman, 1985; Jones and others, 1986; United Nations, 1988b; Caraël, 1995).

TABLE 14. PERCENTAGE OF EVER-MARRIED MEN AND WOMEN WHO WERE NOT SEXUALLY EXPERIENCED AT THE TIME OF FIRST MARRIAGE OR REGULAR PARTNERSHIP, SELECTED CITIES OR COUNTRIES, BY AGE GROUP, 1989-1991

Country or city	*Sex*	*Current age group*			
		25-29	*30-34*	*35-39*	*40-49*
Côte d'Ivoire . .	Male	35	24	23	29
	Female	53	56	58	68
Kenya	Male	15	8	5	6
	Female	31	25	30	32
Lusaka	Male	38	26	23	28
	Female	51	57	68	65
Manila	Male	36	29	21	24
	Female	83	88	85	87
Rio de Janeiro	Male	17	14	9	13
	Female	71	69	75	81
Singapore	Male	57	71	56	68
	Female	92	95	95	94
Thailand	Male	28	26	27	37
	Female	98	96	95	99
United Republic of Tanzania .	Male	30	24	28	42
	Female	66	77	82	83

Source: Michel Caraël, "Sexual behaviour", in *Sexual Behaviour and Knowledge of AIDS in the Developing World*, John Cleland and Benoit Ferry, eds. (London, Taylor and Francis, 1995), p. 93, table 4.3.

In sub-Saharan Africa, changes in the timing of marriage and definitional problems surrounding the institution of marriage, rather than a decline in the age of sexual initiation, are probably the main factors contributing to any increase in premarital sexual activity. It appears that dramatic changes in this region have taken place in the context within which sexual behaviour among young people occurs. While teenage fertility rates appear to have fallen in Kenya, Togo, Uganda and Zimbabwe, and possibly in Botswana, Burundi, Nigeria and Senegal (Population Reference Bureau, 1992a), an increasing proportion of births have occurred among women who report themselves as single (Bledsoe and

Cohen, 1993). This trend indicates a weakening of the links among the onset of sexual activity, reproduction and marriage. Dulaunay (1994) found that, although a clear increase in age at first marriage was observed in Senegal, age at first intercourse and age at first birth have remained relatively stable and were therefore increasingly premarital. What remains uncertain, however, is the extent to which these supposedly premarital births occur within relatively stable, albeit non-cohabiting, partnerships.

Whether or not premarital sexual activity is increasing, DHS data reveal that the gap between age at first intercourse and age at first marriage may be prolonged. Table 15 provides the relevant information for 30 developing countries. Botswana and Namibia stand out as extreme cases with an average interval of seven years between the two events. In Kenya and Togo, the intervals are in excess of two years, but similar results are obtained in Latin America for Bolivia, Columbia and Peru. For most developing countries, however, a close association between age at first intercourse and mean age at first union is apparent.

In general, it would appear that young women are sexually active for a longer period of time in Africa, prior to marriage, than they are in Latin America and Asia. Data from the WHO/GPA surveys show that the mean duration of time between first intercourse and marriage is always longer for men than for women (Caraël, 1995). This finding is in line with the observation that first intercourse coincides more often with marriage for women than for men.

Approximately 63 per cent of young people live in Asia, including China, but very little is known about the sexual behaviour of young people in that region. It is typically assumed that premarital sexual activity is uncommon and dictated by strong social sanctions. Thus, any rise in age at marriage will also increase age at sexual debut. However, Ma and Yao (1994) report that 25 per cent of all abortions in Shanghai were performed on unmarried women and this figure may well be typical of large cities in China. An increase in prenuptial conceptions has also been documented in the Republic of Korea (Rindfuss and Morgan, 1983). Thus, in Eastern Asia, these shreds of evidence suggest that premarital intercourse is becoming more common. In Southern Asia, however, there is insufficient information for even a tentative conclusion.

TABLE 15. MEDIAN AGE AT FIRST INTERCOURSE AND FIRST MARRIAGE AMONG WOMEN AGED 25-29, IN ORDER OF DURATION OF THE TIME BETWEEN THE TWO EVENTS, SELECTED COUNTRIES

Region and country	*Date*	*Age at first intercourse*	*Age at first marriage*	*Interval*
Sub-Saharan Africa				
Botswana	1988	17.2	24.9	7.7
Burkina Faso	1993	17.2	17.5	0.3
Burundi	1987	19.2	19.5	0.3
Cameroon	1991	16.0	16.9	0.9
Ghana	1988	16.6	18.5	1.9
Kenya	1993	17.0	19.5	2.5
Madagascar	1992	17.0	18.9	1.9
Mali	1987	15.8	15.9	0.1
Namibia	1992	19.0	26.4[a]	7.4
Niger	1992	15.0	15.1	0.1
Nigeria	1990	16.4	17.2	0.8
Rwanda	1992	20.2	20.9	0.7
Senegal	1992/93	16.5	16.8	0.3
Togo	1988	16.3	18.4	2.1
Uganda	1988/89	15.6	17.5	1.9
United Republic of Tanzania	1991/92	17.2	19.0	1.8
Zambia	1992	16.4	18.0	1.6
Zimbabwe	1988/89	17.5	18.8	1.3
Asia				
Indonesia	1991	18.5	18.6	0.1
Philippines	1993	21.9	22.0	0.1
Latin America and the Caribbean				
Bolivia	1989	17.8	20.0	2.2
Brazil	1986	19.9	21.1	1.2
Colombia	1990	20.0	22.5	2.5
Dominican Republic	1991	19.9	19.8	-0.1
Ecuador	1987	18.6	19.8	1.2
Guatemala	1987	18.1	18.5	0.4
Mexico	1987	19.8	20.2	0.4
Paraguay	1990	19.0	20.8	1.8
Peru	1991/92	19.7	21.8	2.1
Trinidad and Tobago	1987	19.5	19.8	0.3

Source: Adapted from D. Carr and Ann Way, *Women's Lives and Experiences: A Decade of Research Findings from the Demographic and Health Surveys Program* (Calverton, Maryland, Macro International, Inc., 1994), p. 17.

[a]Average age, taken from Alan Guttmacher Institute, *Women, Families and the Future: Sexual Relationships and Marriage Worldwide*, Fact sheet (Washington, D.C., 1995.)

Explanations of the observed changes in sexual behaviour are similar in both developed and developing regions. Wellings and others (1994) suggest that

increases in the number of young people who are sexually active in the United Kingdom stem from biological and cultural factors. In particular, earlier age of maturity and a general weakening of the influence of social and cultural values governing sexual and reproductive behaviour play a key role in explaining young people's behaviour. Similarly, in developing countries, urbanization, weakening of the extended family system, "modernization", lack of consensus on acceptable adolescent behaviour and later age at marriage are frequently identified as factors associated with the increase in premarital sexual activity (Sai, 1984; Senderowitz and Paxman, 1985).

Although adolescent fertility rates remain high in much of the developing countries, declines are occurring in many countries. In a number of sub-Saharan African countries where the fertility transition has commenced—most notably in Botswana, Kenya and, more recently, Nigeria, Senegal and the Sudan—it appears to be concentrated among younger cohorts and associated with delays in age at first marriage and at first birth (Westoff, 1992). However, while proportions married in the cohort 15-24 are clearly declining in many countries, the proportions engaging in sexual activity do not appear to be undergoing similar changes and may have increased in some countries (Hoffman, 1984; Meekers, 1993; Senderowitz and Paxman, 1985; Jones and others, 1986; United Nations, 1988b; Caraël, 1995). While any increase in sexual activity prior to marriage may not have been sufficient to offset the negative effect on fertility of the decline in marriage, it may prove to be only a matter of time before this happens in some areas of the world, unless there is increased adoption of contraceptive methods in this age group. Fertility levels among adolescents are lower in Latin America than in Africa. However, in contrast to the rapid fertility decline occurring among older women in Latin America, declines among the adolescent population have been slow and erratic. In 1986, fertility rates for adolescents in rural areas of Brazil and Peru were above those reported in the 1960s and 1970s (Marques, 1995).

3. Never-married women and their sexual activities

Both the WHO/GPA and the YARHS programmes of survey research provide further detail on the sexual behaviour of young unmarried females. Table 16 shows the percentages of never-married women aged 15-19 who reported sexual intercourse in the preceding 12 months. Results of the three surveys in Asia are consistent; the incidence of premarital sex among females is almost non-existent. There is immense diversity in the results of the six surveys in Africa. In Togo, only 3 per cent of women reported intercourse. At the other extreme, 44 per cent of single teenage girls in Kenya reported sexual activity in the past 12 months. Clearly, sweeping generalizations about the sexual behaviour of unmarried young women in this region are unwarranted. Table 16 also provides the mean number of sexual partners in the past 12 months among women who were sexually active during that period. Again, there is considerable variability but the results indicate that appreciable proportions had more than one partner, particularly in Côte d'Ivoire, Guinea-Bissau, Kenya and the United Republic of Tanzania. The very high estimate for Thailand is more difficult to interpret because it is based on a very small number of sexually active women.

The YARHS programme provides insights on Latin America and the Caribbean (table 17). Among sexually experienced unmarried females aged 15-19, the proportions that were sexually active in the preceding four weeks are below 50 per cent in all areas other than Rio de Janeiro and Recife in Brazil (Population Reference Bureau, 1992b). Among the sexually active, average

TABLE 16. PROPORTION OF NEVER-MARRIED MEN AND WOMEN AGED 15-19 WHO REPORT SEXUAL INTERCOURSE IN THE PRECEDING 12 MONTHS, AND MEAN NUMBER OF SEXUAL PARTNERS

	Males		*Females*	
Country or city	*Sexually active in last 12 months (percentage)*	*Mean number of partners*	*Sexually active in last 12 months (percentage)*	*Mean number of partners*
Côte d'Ivoire	43	2.4	28	1.6
Guinea-Bissau	51	1.7	30	1.9
Kenya	54	1.6	44	1.5
Lesotho	33	2.3	16	1.3
Metro Manila (Philippines)	15	1.8	0	0
Rio de Janeiro (Brazil)	61	2.6	9	1.7
Singapore	3	4.5	0	0
Thailand	29	3.8	1	4.3
Togo	18	2.0	3	1.0
United Republic of Tanzania	37	2.5	24	1.7

Source: Michel Caraël, "Sexual behaviour", in *Sexual Behaviour and Knowledge of AIDS in the Developing World*, John Cleland and Benoit Ferry, eds. (London, Taylor and Francis, 1995), tables 4.1 and 4.2.

TABLE 17. PERCENTAGE OF UNMARRIED, SEXUALLY EXPERIENCED MEN AND WOMEN AGED 15-19 WHO REPORT SEXUAL INTERCOURSE IN THE PAST MONTH, SELECTED CITIES IN LATIN AMERICA

Country or city	*Year*	*Female*	*Male*
Rio de Janeiro	1989	63	31
Recife	1989	58	30
Curitiba	1989	45	32
Santiago de Chile	1988	43	22
São Paulo	1988	41	25
Salvador	1987	31	28
Mexico City	1985	29	23
Costa Rica	1990	23	26
Quito/Guayaquil	1988	23	26
Paraguay	1987	22	..
Haiti	1989	21	29
Guatemala City	1986	..	32
Banjul (Gambia)[a]	1993	15	31

Sources: Data from YARHS adapted from Population Reference Bureau, *Adolescent Women in Sub-Saharan Africa: A Chartbook on Marriage and Childbearing, 1986-1991* (Washington, D.C., 1992), p. 12; T. Kane and others, "Sexual activity, family life education and contraceptive prevalence among young adults in Banjul, the Gambia", *Studies in Family Planning* (New York), vol. 24, No. 1 (January/February 1993), pp. 50-61.

[a] Survey on young men and women aged 14-24 (1,687 women and 834 men) carried out by the Family Planning Association of the Gambia.

frequency of intercourse ranges from 2.4 to 4.8 times per month. The study conducted in Banjul found that 28 per cent of unmarried women (aged 14-24) and 73 per cent of young men in the same cohort reported sexual experience. However, only 15 per cent of women and 31 per cent of men reported sexual intercourse in the last month.

4. *Pattern of sexual behaviour: gender differentials*

In most areas of the world, males, compared with females, report an earlier age at sexual intercourse, a greater number of partners and a longer period between sexual initiation and marriage. They are more likely than women to report premarital sexual activity. This is clearly seen from data presented in table 16. In each of the 10 surveys, single males aged 15-19 were more likely than females to report sexual intercourse in the past 12 months. The gender difference is particularly striking in Togo, Metro Manila (Philippines), Thailand and Rio de Janeiro (Brazil). Among those sexually active in the past year, the same table indicates that men typically have more sexual partners. However, these differences do not necessarily imply that sexual intercourse among sexually active young men is necessarily more frequent than among women. The evidence from YARHS suggests that women are usually more likely to have experienced intercourse in the past four weeks than men (see table 17). One possible reason is that young single men are more likely than women to experience sporadic casual sex. This interpretation is consistent with the finding that females are more likely than males to report first sexual intercourse with a steady partner or fiancé (Liskin and others, 1985), as the data in table 16 show.

These differences in sexual behaviour between males and females appear consistently among culturally diverse population groups. For instance, a study carried out in Brazil reports that 64 per cent of unmarried males aged 15-17 were sexually experienced, compared with only 13 per cent of females in the same age group (Liskin and others, 1985). Similarly, in northern Uganda, it was found that 50 per cent of men and only 18.5 per cent of women report premarital sex (Schopper, Doussantousse and Orav, 1993). A sexual behaviour survey carried out in a rural area of the United Republic of Tanzania among age group 15-49 found that 93.2 per cent of women reported monogamy in the last month compared with 70.7 per cent of men. Only 6.8 per cent of women reported two or more partners, compared with almost one third of men. Data show that 78.4 per cent of men, but only 37.2 per cent of women, had five or more lifetime partners (Konings and others, 1994). Table 18 presents YARHS and DHS data on age at first intercourse for both men and women. A higher proportion of men aged 15-19 report sexual activity before age 15 than do women of the same age group, and this difference remains at later ages (20-24).

Median age at first intercourse for women in France is 18.1 compared with 16.8 among males. A similar difference is also observed in the United States (Jones and others, 1986). A British survey on sexual attitudes and lifestyles documents a narrowing of differences in sexual behaviour between males and females, particularly concerning age at first intercourse. Although in general age at first intercourse continued to be higher among women, the median age at sexual debut was the same for men under age 25. With regard to those aged 25 years or over, there was a difference of one year between the sexes (Wellings and others, 1994). Differences between men and women in the proportions sexually active before age 16 were also decreasing

TABLE 18. PERCENTAGE DISTRIBUTION OF ALL MEN AND WOMEN AGED 15-19 WHO REPORT FIRST INTERCOURSE BEFORE AGE 15, AND OF THOSE AGED 20-24 WHO REPORT INTERCOURSE BEFORE AGE 20, AND AVERAGE AGE AT FIRST INTERCOURSE, FIVE CITIES IN LATIN AMERICA

City	*Before age 15 (aged 15-19)*		*Before age 20 (aged 20-24)*		*Average age at first intercourse*	
	Male	*Female*[a]	*Male*	*Female*[b]	*Male*	*Female*
Guatemala City	31.6	13.9	85.2	48.8	14.8	16.7
Mexico City	15.1	4.5	79.0	40.3	15.7	17.0
Quito	27.1	8.4	89.0	46.0	15.1	17.4
Salvador	37.5	8.0	84.4	47.4	14.8	17.2
Sao Paulo	35.8	8.0	88.6	47.4	14.7	16.8

Source: YARHS data for males and DHS data for females adapted from Susheela Singh and Deirdre Wulf, *Today's Adolescents, Tomorrow's Parents: A Portrait of the Americas* (New York and Washington, D.C., Alan Guttmacher Institute, 1990), p. 38.

[a]All women aged 15-19.

[b]All urban women aged 20-24.

(Wellings and others, 1994). This observation is interesting in relation to the data on average age at marriage, which also suggest a general reduction in the differences between men and women.

The form that sexual activity takes also reveals marked differences between the sexes, and these differences are also consistent across cultures. Table 19 shows that the prevalence of sexual intercourse with non-regular partners (commercial or casual[9]) is higher among males than among females in most countries. This difference may reflect the greater reliance of males on sex workers, especially in some Asian countries (Caraël, 1995); however, in all countries males are also more likely to engage in casual (non-commercial) sex than their female counterparts. The prevalence of non-regular sex is highest among males aged 20-29, and among females aged 15-24. The WHO/GPA surveys reveal that condom use in commercial sex acts is rare in all countries and among all age groups (ages 15-49). The percentage of all males engaging in unprotected commercial sex ranges from 0.4 per cent in Sri Lanka (aged 15-19 and 20-24) to 34 per cent (aged 20-24) in the United Republic of Tanzania. There are no reports of females engaging in commercial sex in Burundi, the Philippines, Mauritius, Rio de Janeiro (Brazil) or Singapore, but there are reports that levels are higher in several parts of Africa. In the United Republic of Tanzania, however, 12 per cent of women (aged 15-19 and 20-24) report engaging in unprotected commercial sex. These findings have important implications in the spread of HIV and other sexually transmitted diseases.

Age differences between partners have important implications in the transmission of sexually transmitted diseases. The fact that men typically have younger female partners increases the vulnerability of women at a young age to sexually transmitted diseases and HIV infection (Wellings and others, 1994). Relationships between older men and younger women are reported to be increasingly common in some parts of Africa. This pattern is partly reinforced by polygamy; however, there is also the "sugar daddy" phenomenon (International Planned Parenthood Federation, 1994). While it is often believed that young women enter sexual relations with older men for material gain, a study in Kenya among sexually active female students aged 12-19 found that 63.3 per cent had not intended to engage in intercourse and 59.1 per cent had been forced to do so against their will (Lema, 1990). Thus, coercion may have taken place. Recent data from Uganda show that 32.4 per cent of young women aged 15-19 in Kampala are infected with HIV, compared with only 3 per cent among their male counterparts. The discrepancy is linked to the fact that young women often have older male sexual partners, as well as experience an earlier sexual maturation and increased physiological vulnerability. According to a recent survey carried out by the Alan Guttmacher Institute, at least 50 per cent of babies born to teenage girls in the United States were fathered by men over

TABLE 19. PERCENTAGE OF MALE AND FEMALE RESPONDENTS WHO REPORT COMMERCIAL AND CASUAL SEXUAL INTERCOURSE IN THE LAST 12 MONTHS, SELECTED COUNTRIES

Country or city	*Age group*		*Commercial sex*	*Casual sex*
Burundi	15-19	Male	3.4	2.5
		Female	0.0	1.5
	20-24	Male	5.2	5.7
		Female	0.0	2.2
Central African Republic	15-19	Male	15.1	2.3
		Female	3.6	0.4
	20-24	Male	14.6	3.3
		Female	8.0	1.2
Côte d'Ivoire	15-19	Male	6.9	40.5
		Female	10.9	8.2
	20-24	Male	10.0	51.6
		Female	10.8	6.6
Guinea-Bissau	15-19	Male	11.1	27.8
		Female	1.9	26.3
	20-24	Male	14.7	37.3
		Female	1.2	22.0
Kenya	15-19	Male	9.2	18.7
		Female	7.7	13.7
	20-24	Male	14.9	28.2
		Female	5.2	7.9
Lesotho	15-19	Male	3.3	13.3
		Female	1.7	4.5
	20-24	Male	10.9	30.4
		Female	6.8	15.2
Lusaka (Zambia)	15-19	Male	6.5	6.6
		Female	2.1	3.8
	20-24	Male	15.7	15.0
		Female	1.4	4.5
Mauritius	15-19	Male	1.9	3.1
		Female	0.0	0.0
	20-24	Male	1.1	15.1
		Female	0.0	0.0
Metro Manila (Philippines)	15-19	Male	3.1	6.0
		Female	0.0	0.0
	20-24	Male	11.5	15.9
		Female	0.0	3.4
Rio de Janeiro (Brazil)	15-19	Male	8.2	9.6
		Female	0.0	6.5
	20-24	Male	8.3	16.7
		Female	0.0	2.8
Singapore	15-19	Male	2.7	0.7
		Female	0.0	0.0
	20-24	Male	5.4	1.5
		Female	0.0	0.0
Sri Lanka	15-19	Male	0.8	0.8
		Female	0.4	0.0
	20-24	Male	0.8	0.8
		Female	0.4	0.0
Thailand	15-19	Male	24.6	5.3
		Female	0.8	1.2
	20-24	Male	41.3	5.2
		Female	2.0	0.8
Togo	15-19	Male	3.4	8.9
		Female	0.5	3.1
	20-24	Male	9.3	19.0
		Female	0.0	3.1
United Republic of Tanzania	15-19	Male	19.2	15.3
		Female	11.9	6.3
	20-24	Male	37.9	17.0
		Female	12.5	5.1

Source: World Health Organization Global Programme on AIDS, survey data.

age 19. The report also stated that the younger the teenage mother, the older the father was likely to be (British Medical Journal, 1995).

5. *Socio-economic differential with respect to sexual activities: education and residence*

Socio-economic differences have also been observed in patterns of sexual behaviour. For instance, age at sexual debut in the United States has been shown to be younger among working-class adolescents than among their middle-class peers (Wellings and others, 1994), although there is also evidence of a convergence over time (Wellings and others, 1994). Similar patterns are observed in Great Britain. Age at first intercourse among young men in social class I (professionals) is 18, while among social class V (unskilled) it is two years earlier. The British survey on sexual attitudes and lifestyles shows that social class differentials are more distinct among males than among females (Wellings and others, 1994). The WHO/GPA surveys, which document patterns of sexual behaviour by educational status, show greater variation among men than among women in patterns of sexual behaviour observed between educational categories. Sexual activity is more common among secondary-school-educated young men than among those who have little or no schooling. Reported sexual behaviour of primary- and secondary-school-educated women tends to be similar, while it is lower among those with no education (Caraël, 1995) (see table 20).

TABLE 20. PERCENTAGE OF NEVER-MARRIED MEN AND WOMEN, AGED 15-19, WHO REPORT SEXUAL INTERCOURSE IN THE LAST 12 MONTHS, SELECTED COUNTRIES

Country or city	*Sex*	*Education*		
		None	*Primary*	*Secondary*
Burundi	Male	5	7	27
	Female	1	5	5
Central African Republic	Male	41	41	68
	Female	32	22	39
Côte d'Ivoire	Male	37	38	46
	Female	32	24	29
Guinea-Bissau	Male	50	56	89
	Female	57	47	64
Kenya	Male	89	46	60
	Female	65	41	47
Lesotho	Male	0	36	32
	Female	0	16	18
Lusaka (Zambia)	Male	..	16	16
	Female	14	8	13
Metro Manila (Philippines)	Male	0	0	16
	Female	0	0	0
Rio de Janeiro (Brazil)	Male	56	65	60
	Female	5	11	11
Thailand	Male	..	32	25
	Female	..	2	0
Togo	Male	9	18	20
	Female	4	2	5
United Republic of Tanzania	Male	24	38	55
	Female	6	26	32

Source: Adapted from Michel Caraël, "Sexual behaviour", in *Sexual Behaviour and Knowledge of AIDS in the Developing World*, John Cleland and Benoit Ferry, eds. (London, Taylor and Francis, 1995), p. 85, figure 4.4.

Interpretation of the link between education and sexual behaviour is not straightforward. Caraël (1995) suggests that education results in the relaxation of the strong social controls that sanction sexual behaviour and therefore an increase in premarital sexual activity occurs. At the same time, better-educated men and women marry later. Increased educational opportunities for women, in particular, are frequently associated with increase in age at marriage and at first birth. The link between premarital sexual activity and education is therefore likely to reflect in part the longer period between puberty and entry into marital union. Other studies suggest that educational attainment makes little difference and still others suggest that the influence is in the opposite direction. Data from the United States show that age at first intercourse increases with educational level (Wellings and others, 1994, p. 51) and Singh and Wulf (1990) argue that education has played a key role in raising age at sexual debut in parts of Latin America and the Caribbean.

Residential differences in premarital sexual behaviour are also difficult to measure and the evidence is conflicting. Levels of premarital sexual activity are often assumed to be higher in urban areas, while sexual relations begin at an earlier age in rural areas. Data obtained from recent WHO/GPA surveys and DHS, however, suggest little significant variation in sexual behaviour between rural and urban youth in most countries. Table 21 shows that residential differences tend to be marginal. The exceptions are Bolivia, Burundi, Liberia, Namibia, the Niger, Nigeria, Peru and Uganda, where young women in urban areas are more likely than those in rural areas to engage in sexual relations prior to marriage.

6. *Conclusion*

Evidence concerning young people's sexual behaviour demonstrates extreme heterogeneity in the events that define entry into reproductive life and the timing of those events. Generalizations, at both the regional and local levels, are difficult. However, some broad patterns emerge from the evidence presented in the present section.

In Europe and the United States, there is a clear indication of an increase in levels of sexual activity among young people. Age at first sexual intercourse is falling in a number of countries, such as the United States, the United Kingdom and the Netherlands. These trends towards earlier sexual activity at an early age are cause for concern for a number of reasons. The health risks of early childbearing for both the mother and the child are well documented. Aside from the risks associated with childbearing, young age at sexual debut is also associated with increased risk of sexually transmitted diseases, including cervical cancer, owing to biological and behavioural factors (Aral, 1992). Data from the United States (Aral, 1992), the United Kingdom (Wellings and others, 1994) and South Africa (Van Coeverden de Groot and Greathead, 1987) show that those who begin sexual activity at a younger age are more likely to have a greater number of sexual partners, both over the course of a lifetime and per unit of time.

TABLE 21. SEXUAL ACTIVITY AMONG SINGLE WOMEN AGED 20-24, BY URBAN OR RURAL RESIDENCE, SELECTED COUNTRIES

Region and country	*Date*	*Percentage of women aged 20-24 who report non-marital sexual activity before age 20*		
		Total	*Urban*	*Rural*
Sub-Saharan Africa				
Botswana	1988	78	75	79
Burundi	1987	9	33	8
Cameroon	1991	40	45	36
Ghana	1988	61	59	61
Kenya	1993	60	57	61
Liberia	1986	66	73	60
Mali	1987	13	14	13
Namibia	1992	55	60	52
Niger	1992	4	15	2
Nigeria	1990	27	46	19
Togo	1988	67	70	66
United Republic of Tanzania	1991/92	45	48	44
Uganda	1988/89	56	71	53
Zambia	1992	50	51	50
Zimbabwe	1988/89	38	37	39
Latin America and the Caribbean				
Bolivia	1989	32	29	39
Brazil	1986	21	22	19
Colombia	1990	22	21	25
Dominican Republic	1991	12	12	11
Ecuador	1987	19	16	23
Guatemala	1987	15	15	15
Mexico	1987	11	11	12
Paraguay	1990	33	34	31
Peru	1991/92	27	24	40
Trinidad and Tobago	1987	13	14	13
Northern America				
United States	1988	68	69	63

Source: DHS data adapted from the Alan Guttmacher Institute, *Women, Families and the Future: Sexual Relationships and Marriage Worldwide*, fact sheet (Washington, D.C., 1995).

Early sexual activity is also associated with more frequent intercourse and sexual risk-taking (Bland, 1988; Caraël, 1995; Van Coeverden de Groot and Greadhead, 1987), and is more likely to be accompanied by feelings of regret (Wellings and others, 1995).

In other regions of the world, trends in age at sexual debut and in proportions sexually active are less clear. For Asia, relevant information is lacking and no confident generalizations can be made. More data are available for sub-Saharan Africa and Latin America and the Caribbean. In these regions, age at sexual debut does not appear to be declining, although sexual activity begins at an early age in many countries. Evidence from a number of sub-Saharan African countries suggests a decline in the proportion of women experiencing sexual intercourse before age 15, and in Colombia, the Dominican Republic, Mexico, Peru, and Trinidad and Tobago there has been a decline in the proportion of women reporting sexual intercourse before age 20. However, studies elsewhere indicate a drop in the age at first intercourse (Konings and others, 1994). What appears to be occurring in sub-Saharan Africa and, perhaps, in other developing regions (which complicates the picture), is a radical change in the social context within which sexual activity increasingly takes place (Bledsoe and Cohen, 1993). Increases in age at first marriage, in the absence of corresponding adjustments in age at first intercourse, means that more and more young women have been exposed to premarital sexual activity. In the past adolescent sexual activity and childbirth were common, but these events took place within the process of marriage formation, which served to legitimize adolescent sexual and reproductive behaviour; however, as Bledsoe and Cohen (1993) argue, sexual activity is increasingly taking place outside the marriage process. The context, therefore, within which sexual activity and births are occurring is being transformed at a faster rate than are patterns of sexual behaviour in some areas of the world.

In many areas of the world, adolescent fertility rates are falling, largely as a result of later marriage (Robey, Rutstein and Morris, 1992; Westoff, 1992). However, more and more women worldwide are having sexual relations and children outside marriage (Alan Guttmacher Institute, 1995). The consequences of this change in the context within which sexual activity and reproduction take place differ between and within countries. Despite increased knowledge of contraception and improved access to services in some areas, young people remain poor contraceptive users. Many countries continue to restrict access to contraception by unmarried young people. It is estimated that 15 million young women aged 15-19 give birth each year. Many of these births are unwanted and unplanned. In Latin America, between 20 and 60 per cent of young women's most recent births or current pregnancies were unwanted (Hirsch and Barker, 1992). The consequences of having a child out of wedlock may be far reaching. For girls who are still in school, pregnancy often results in expulsion (Hirsch and Barker, 1992). It is estimated that, in Kenya, 10,000 schoolgirls per annum drop out or are expelled as a result of pregnancy (International Planned Parenthood Federation, 1994). In Zambia and Zimbabwe, even if the ministries of education have issued policy statements to protect girls from missing out on their education, they are still required to find new schools if they become pregnant (International Planned Parenthood Federation, 1994). Global estimates of the number of young women that experience pregnancy and seek an abortion are very approximate, ranging from between 1 million and 4.4 million in developing countries. The majority of abortions in developing countries are illegal and occur in unsafe conditions. Many of these result in death, severe morbidity and infertility. As Mellanby and others (1995) argue, the medical problems associated with teenage sexual behaviour are a major health problem.

D. Conclusions

Despite the lack of standardized data on young people's sexual and reproductive behaviour and the problems surrounding definitions of marriage, it is possible to identify broad patterns of sexual behaviour among young men and women. The data presented above expose the complexities and variation in the events that define the beginning of reproductive life across a wide range of populations. It is clear that the boundaries that define this period, namely, age at menarche and age at marriage, are in a process of flux. In particular, age at marriage has increased steadily among women in many countries. Age at sexual debut, on the other hand, has remained relatively stable, although there is growing evidence of a trend towards earlier sexual debut in a number of developed countries. However, lack of data from Asia, where sexual activity is thought to be commonly confined to marriage (particularly for women) by strong social sanctions, may mask a considerable increase in age at sexual debut in

BOX 1. AGE OF ENTRY INTO REPRODUCTIVE LIFE OF INDIAN WOMEN

India occupies a prominent place on the world demographic scene. Any change in the demographic events in India is, therefore, noteworthy. Marriage is nearly universal there and early marriage is a time-honoured tradition. According to recent data obtained from the National Family Health Survey, 1992-1993, 95 per cent of women aged 25-29 were married. The survey data show that the tradition of early marriage has changed dramatically over the past three decades. The proportion of women marrying before age 13 dropped from 27 per cent of those that are in age group 45-49 to 7 per cent of those that are in age group 15-19, and the proportion marrying before age 15 has declined from 45 per cent of women aged 45-49 to 17 per cent of those aged 15-19. However, teenage marriage continues to be more prevalent among rural women than among urban women: 46 per cent of rural women aged 15-19 were married as compared with 22 per cent of urban women. Within India, there is a remarkable heterogeneity in the proportions married in age group 15-19; more than half of the women in this age group in Madhya Pradesh and Bihar are currently married, as compared with only 3 per cent in Goa. These differences are reflected in the median age at marriage. The median age at marriage for women aged 25-49 is highest in Goa, at 21.7, and about, 15 in Madhya Pradesh, Rajasthan, Uttar Pradesh, Bihar and Andhra Pradesh. There is a difference of more than three years in the median age at marriage between rural and urban women. The median age at marriage for the more recent cohort women aged 20-24 is 19.7 in urban areas and 16.5 years in rural areas.

The age at marriage increases sharply with the education of women. Among women aged 25-29, the median age at marriage rises from 15.3 for illiterate women to 21.7 for women that have completed high school, a difference of more than six years. Despite progress in educational attainment in India in recent years, 72 per cent of rural women in their childbearing years are illiterate. Currently, more than two fifths of school-aged girls in the country and more than half of the girls in several of the larger States do not attend school.

In 1978, India enacted a law restraining child marriage and defining the minimum legal age at marriage as 18 for women and 21 for men. Even 15 years after the enactment of the law, more than 50 per cent of women aged 20-24 married before age 18, the legal minimum age at marriage. The proportion of women aged 20-24 who got married before age 18 is higher in rural areas (63 per cent) than in urban areas (33 per cent). A large majority of the women are ignorant of the legal minimum age at marriage.

Consistent with their tradition of early marriage, Indian women also start bearing children relatively early in their reproductive lives. Of all women aged 13-19, 17 per cent have either borne children or are currently pregnant. Moreover, women in age group 15-29 contribute more than 75 per cent of total fertility. A concerted effort is needed to discourage marriage below the legal minimum age of 18 for women and to reduce the extent of early childbearing which can be detrimental to the health of mother and child.

Source: National Family Health Survey, 1992-1993, India: Summary Report (Bombay, International Institute for Population Sciences, August 1995).

response to rising ages at marriage. At the regional level, therefore, later age at marriage, combined with strong social control of sexual activity prior to marriage, may have acted to increase age of sexual activity for women.

Two distinct trends in young people's sexual behaviour emerge from this review, both of which result in greater sexual activity prior to marriage. The first trend, seen in the developed countries is one where age at menarche is declining, while age at marriage is increasing. There is evidence of a fall in age at sexual debut, and a greater proportion of adolescents are involved in cohabiting partnerships, which may or may not result in marriage. As a consequence, there has been an increase in the overall proportion of young people who are

sexually active. The second trend, which appears to be occurring in sub-Saharan Africa and, possibly, Latin America and the Caribbean, is one where age at marriage has increased and age at menarche has probably fallen, although there is a paucity of data on this subject. Age at sexual debut has remained relatively stable although some increase has probably occurred in a number of populations. In general, however, a rise in premarital sexual activity is occurring as a direct result of later age at marriage.

Both observations emphasize the growing dissociation between timing of marriage and initiation of sexual intercourse. An increase in the proportion of young people engaged in premarital sexual activity and a trend towards earlier sexual involvement raise concerns for a number of reasons mentioned above. Although marriage does not alleviate all health problems associated with early sexual activity, it does mitigate them. Access to health-care services, including family planning and prenatal care, is often easier for married than for unmarried individuals. The social and economic consequences of pregnancy and childbirth are also reduced through the process of marriage, which provides a legitimizing mechanism and support system. Young people, therefore, are increasingly vulnerable to adverse outcomes associated with premarital and early sexual activity.

The consequences of early sexual activity and reproduction have also changed over time. Educational and training opportunities for women have improved, but are often not compatible with pregnancy and childbirth. The breakdown in extended family support systems, rapidly changing cultural values and increasing economic hardship in some areas of the world often result in less support and guidance for young people concerning reproductive behaviour and childbearing. The advent of HIV presents a serious threat to life. Trends in young people's sexual behaviour and changes in the wider social and economic environment indicate that growing numbers of young people are increasingly at risk for adverse consequences of early sexual and reproductive behaviour and have, perhaps, increasingly more to lose as a result.

NOTES

[1]More developed regions include Northern America, Japan, Europe and Australia-New Zealand (United Nations, 1995b).

[2]Less developed regions comprise all regions of Africa, Asia (excluding Japan), Latin America and the Caribbean; and Melanesia, Micronesia and Polynesia (United Nations, 1995b).

[3]Ages 14-24 in Jamaica.

[4]However, only a few studies exist in South America.

[5]The *Multilingual Demographic Dictionary* of the International Union for the Scientific Study of Population defines marriage as a union between persons of opposite sexes that involves rights and obligations fixed by law or custom (IUSSP, 1982).

[6]The WHO/GPA surveys define regular sexual relationships as those lasting 12 months or more.

[7]The surveys conducted under the DHS programme use a broad definition of marriage, since the primary purpose of collecting these data is to provide an indicator of the beginning of exposure to reproduction. Marriage is defined as including all stable sexual relationships regardless of the legal status of the union. Thus, women in both formal and informal unions are considered "in union" or married. Despite the broad definition of marriage used in the surveys, cultural differences in the way unions are formed, their social significance and their relation to childbearing may affect the way union status and timing of first union are reported (Institute for Resource Development/Macro International, Inc., Demographic and Health Surveys, Methodological Reports, No. 1, *An Assessment of DHS-1 Data Quality* (Columbia, Maryland, 1990).

[8]The age of consent in the United Kingdom of Great Britain and Northern Ireland is 16.

[9]Commercial sex is defined as sexual intercourse involving a favour, gift or financial transaction, if the exchange has been the prime motivation for sex. However, the social context of transactions complicate cross-cultural comparisons. Casual sex is defined as sexual intercourse with other than a regular sexual partner, or within a relationship lasting less than 12 months.

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II. REPRODUCTIVE BEHAVIOUR

The notion of reproductive health encompasses the rights of men and women to make informed choices concerning the number, timing and spacing of their children and to fulfil their reproductive aspirations, ensuring that women's sexuality and childbearing poses no risk to their health and well-being (United Nations, 1995a, chap. I, resolution 1, annex).

Data availability and data quality concerns have long constrained the assessment of women's reproductive behaviour from a health viewpoint in many parts of the world. In the recent past, large-scale demographic surveys, such as the World Fertility Survey (WFS), the Contraceptive Prevalence Surveys (CPS), the Family Planning Surveys (FPS) and the Demographic and Health Surveys (DHS), as well as regional surveys, such as the Arab Maternal and Child Health Surveys (Pan Arab Project for Child Development (PAPCHILD)), have brought about a much-needed improvement in the quantity, quality, availability and international comparability of information on reproductive behaviour and health-related issues (Robey and others, 1992). Despite these significant improvements, there is still a shortage of data for many countries and for many relevant issues, such as actual access to health services, health results of programme interventions and community factors that condition health outcomes of behaviour in individual cases. Meeting the needs for timely and reliable information remains a major challenge facing the initiatives at present being launched to improve reproductive health (Khanna, Van Look and Griffin, 1994).

Although sexual and reproductive health is, by its nature, essentially the result of dyadic behaviour, research has focused primarily on the sexual, reproductive and contraceptive behaviour of women. The need to collect data and conduct research on reproductive attitudes and behaviour of both men and women has become more and more imperative given the renewed emphasis on the shared responsibility of partners in matters related to reproduction (United Nations, 1995a; Bruce, 1994; Danforth and Jezowski, 1994). The DHS programme included the first male-husband module in 1987 and, as of March 1995, surveys in 26 countries had incorporated a subsample of co-resident husbands or an independent sample of men. As these data become available, studies will begin to redress the traditional gender imbalance in demographic and reproductive health research.

The present chapter reviews, based on available data, general patterns and trends of several key aspects of reproductive behaviour: family size, adolescent childbearing, onset and duration of the childbearing span, reproductive aspirations and unwanted pregnancies, infertility and health-risk factors associated with childbearing. A variety of socio-economic and cultural factors shape the individual's reproductive aspirations and behaviour. As regards these factors, special attention is given throughout this chapter to women's position within the family and the society (United Nations, 1993 and 1995b; Mason, 1995), emphasizing the crucial influence of women's education on reproductive behaviour (United Nations, 1995c). In some sections, omission of countries for which data are not available may limit global generalization. However, the wide range of countries included and their varied geographical distribution allow for a meaningful review of numerous dimensions of women's reproductive behaviour.

A. AVERAGE FAMILY SIZE: LEVELS AND TRENDS IN FERTILITY

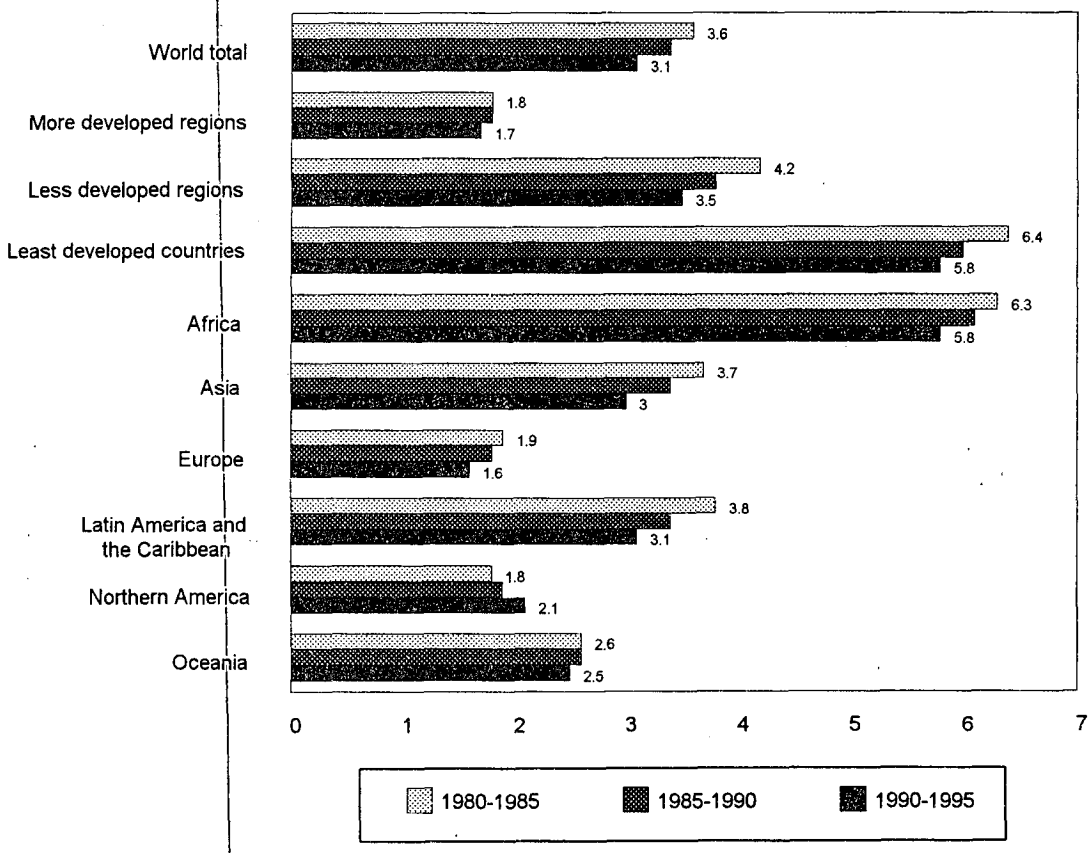
The present section presents a brief review of childbearing levels worldwide and the evolution observed in the past decade. Childbearing levels are discussed in terms of total fertility rates (TFRs), which indicate the average number of children a hypothetical woman would have during her lifetime if she experienced the same level and age pattern of fertility as women at the time the data are collected. Total fertility rates are sensitive to variations in the timing of marriage and childbearing. In societies where the timing of births has undergone significant change, period rates may misrepresent the underlying level of cohort fertility. However, in most cases, this synthetic measure provides a good indication of women's ultimate family size (Cleland, 1991).

Figures 3 and 4 present five-year averages of fertility estimates at the regional and subregional levels since 1980. Supplementing this information, annex table A.1 presents total fertility rates in two recent points in time for most developing countries. Unlike the five-year estimates shown in the figures, the fertility rates presented in the annex tables are not standardized on a specific year. The objective of the annex tables is to document the original data from which standardized estimates are derived: vital statistics, censuses and demographic surveys (a detailed source listing is provided). For the developed countries, which have a reliable and continuously updated system of birth statistics, annex table A.2 presents annual fertility rates for the most recent period. In addition, annex table A.21 presents total fertility rate estimates for 1970-1975 and 1990-1995 and Governments' views of current fertility levels.

According to the United Nations *1994 Revision* of the world population estimates and projections (United Nations, 1995d), the total fertility rate for the world as a whole is estimated to have been 3.1 children per woman in 1990-1995. This average, however, conceals a large diversity of reproductive levels between and within regions. The gap between the more developed regions, with a total fertility rate of 1.7, and the less developed regions, with a total fertility rate of 3.5, although narrower than in the past, remains sizeable. Among the less developed regions, the highest total fertility rate is observed in Africa (5.8), followed by Latin America and the Caribbean (3.1) and Asia (3.0). At the country level, estimated fertility rates range from 7.6 in Yemen to 1.2 in Italy and Spain.

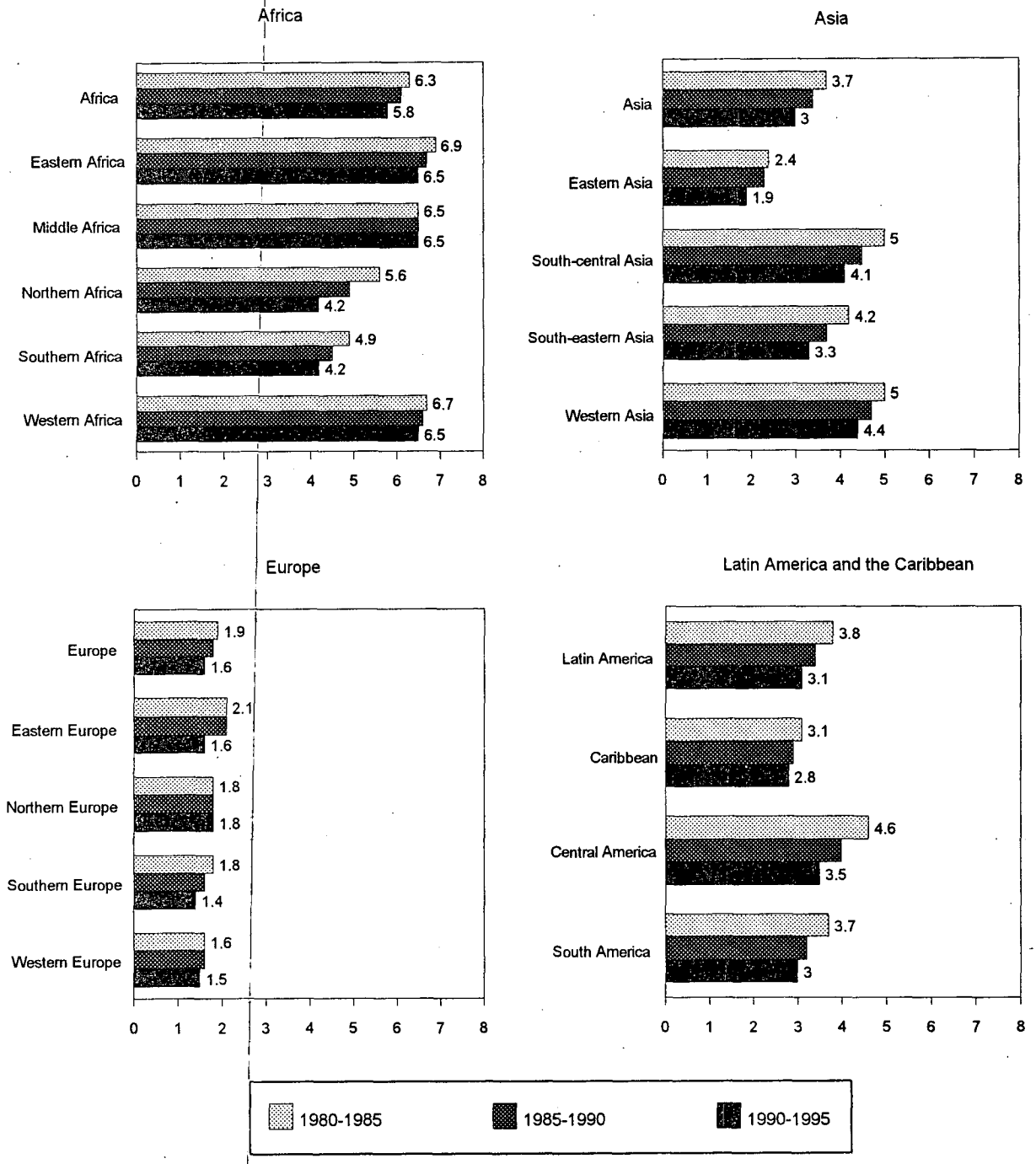
During the past decade, fertility has continued its downward trend. At the world level, the average number

Figure 3. Total fertility rate: world, major areas and regions, 1980-1985, 1985-1990 and 1990-1995



Source: *World Population Prospects: The 1994 Revision* (United Nations publication, Sales No. E.95.XIII.16).

Figure 4. Total fertility rate: world, regions and subregions, 1980-1985, 1985-1990 and 1990-1995



Source: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

of children per woman declined from 3.6 in 1980-1985 to 3.1 in 1990-1995, a reduction of 13 per cent. The implied change in reproductive behaviour has not, however, been of the same order of magnitude in all regions. In the more developed regions, average fertility, which has been below replacement since the late 1970s, experienced only a slight decline during the past decade. In the less developed regions, fertility fell from 4.2 in 1980-1985 to 3.5 in 1990-1995, a total reduction of 16 per cent. The observed reduction was more modest in the least developed countries, where fertility declined from 6.4 to 5.8 children. Factors underlying the decline in family size include economic and social development, transformation in the values concerning children and changes in women's roles and aspirations, and improved access to methods of contraception.

At the regional level, the highest fertility levels are currently observed in Africa, with an average of 5.8 children per woman (figure 3). Fertility declined during the past decade, but the reduction observed (8 per cent) was considerably smaller than in the rest of the less developed regions. Subregional differentials in fertility are illustrated in figure 4. Average fertility is lowest in Northern and Southern Africa (4.2 children per woman), where fertility has experienced a significant decline during the past decade. On the other hand, average fertility in Eastern, Middle and Western Africa currently exceeds 6 children per woman and fertility rates have experienced only a very slight reduction in the most recent quinquennium. Data at the country level (annex table A.1) show that, with the exception of Mauritius and Réunion, current average fertility usually ranges from 5 to 7 children in sub-Saharan Africa and from 3 to 5 children in Northern Africa.

Data availability and data quality concerns have long constrained the assessment of fertility trends in the region (de Graft-Johnson, 1988). However, although reliable vital registration is still rare, a large number of demographic surveys and censuses undertaken in the past decades have brought on a much-needed improvement in the quantity, quality and availability of demographic information for Africa (Cohen, 1993). Despite these significant improvements, knowledge of fertility processes in the region remains uneven and there is still a shortage of demographic data and reliable time-series for many African countries.

Until the late 1980s, there was little evidence of fertility change in sub-Saharan Africa. Recently available information, however, has transformed prevailing perceptions about the stability of African reproductive regimes. Although population growth rates remain high, signs of change in reproductive behaviour are appearing in many societies regarded not long ago as having little or no prospect of fertility decline (van de Walle and Foster, 1990; Cleland, Onuoha and Timaeus, 1993; Foote, Hill and Martin, 1993).

Evidence of declining fertility is strongest in Botswana, Kenya and Zimbabwe, which, not coincidentally, are among the countries with the highest levels of female schooling, lowest levels of child mortality and widest availability of family planning. Recent data from various DHS indicate that fertility may be falling in other countries as well, including Ghana, Namibia, Senegal and Zambia. Kenya merits special attention (Njogu and Castro Martín, 1991). Its fertility rate has been among the highest in the world, and it was believed to have poor prospects for fertility decline. In the Kenya Fertility Survey of 1977-1978, the total fertility rate was about 8.0 children per woman and average desired family size was 7.2 children. According to the 1993 Kenyan Demographic and Health Survey, the total fertility rate is currently 5.4 children and desired family size has dropped to 3.7 children. Successive surveys in this country illustrate how rapidly reproductive aspirations and behaviour can change.

Nevertheless, inferences on upcoming changes in reproductive behaviour in sub-Saharan Africa should be cautious, since there is still little reliable evidence of fertility decline in many countries. Despite recent changes, fertility levels generally remain above 6 children per woman. A pattern of early marriage and early motherhood, preferences for large families, and lengthy breastfeeding and post-partum abstinence periods are some of the distinctive features of the family-building process in the region. The role of economic factors, cultural influences and family systems in the persistence of high fertility has sparked a considerable amount of debate (Boserup, 1985; World Bank, 1986; Caldwell and Caldwell, 1987; van de Walle, Ohadike and Sala-Diakanda, 1988; Lesthaeghe, 1989; Caldwell, Orubuloye and Caldwell, 1992). Sub-Saharan Africa accounts for a disproportionately large number of least developed

countries. The severe economic problems currently faced by many countries in the region have raised the possibility that some of the recently observed fertility declines might result from economic pressure on families, rather than from the forces of modernization or improvements in the standard of living.

In Northern Africa, the process of fertility decline had already started in the late 1970s in Egypt, Morocco and Tunisia. Algeria experienced a later but steeper fertility decline (Guend, 1993): the total fertility rate dropped from 6.8 in the early 1980s to 4.4 in the early 1990s (annex table A.1). A significant reduction in fertility has also been observed recently in the Sudan.

For Asia as a whole, the total fertility rate is estimated to have fallen from 3.7 in 1980-1985 to 3.0 in 1990-1995, a total reduction of 18 per cent. This average, however, conceals the large diversity in childbearing patterns that exist within the region (Leete and Alam, 1993). Eastern Asia, which preceded other subregions in the process of fertility decline, currently displays a level of fertility analogous to those observed in the more developed regions (1.9 children per woman). South-eastern Asia, which has experienced rapid economic growth, accompanied by a considerable reduction of fertility (22 per cent over the past decade), currently displays an average fertility of 3.3 children per woman. More modest declines were observed in South-central Asia, which currently displays an average fertility of 4.1 children and in Western Asia, which continues to display the highest subregional fertility of 4.4 children per woman.

Data at the country level (annex table A.1) show that several countries and areas in Eastern and South-eastern Asia currently have below-replacement fertility: Hong Kong, China; Japan, the Republic of Korea; Singapore; and Thailand. Several other Asian countries have fertility levels close to replacement: China, Georgia, the Democratic People's Republic of Korea, Sri Lanka and Turkey. In recent years, there has been considerable debate about the demographic, social, economic and cultural consequences of the new low-fertility context, particularly regarding labour supply and ageing processes (Leete, 1994). Some of the recorded declines may be somewhat exaggerated, however, because of the effect of marriage and birth postponement on conventional period fertility rates (Freedman, 1995).

Current fertility in all Eastern Asian countries, except Mongolia, is at or below replacement level. China merits special attention, not only because its 1.2 billion people represent 35 per cent of the population of Asia, but also because its passage from high to replacement-level fertility has been remarkably rapid. The key role of the government implementation of a massive family planning programme has been extensively highlighted, but fertility decline was also facilitated by forces other than the government programme, such as the prior decline in child and adult mortality, the rapidly rising educational level, the employment of women outside the family, a severe housing shortage, the existence of old-age pensions in urban areas, parents' aspirations for their children's education and, more recently, rising consumerism (Freedman, 1995).

In South-central Asia, fertility reduction has been more modest. However, significant fertility declines have occurred in societies that are largely poor, with large rural and illiterate strata (Caldwell, 1993). Bangladesh, for example, has experienced an unexpectedly rapid fertility decline (from 6.3 children in the early 1970s to 3.4 children in the early 1990s). The case of Bangladesh has often been deemed illustrative of the idea that a strong family planning programme effort can have a substantial influence on reproductive behaviour even in the absence of much parallel change in social and economic development (Cleland and others, 1994).

India has also experienced a notable fertility decline (from 4.9 children in 1981 to 3.4 children in 1993). Several studies have shown that women's social status, together with social development, is one of the most important factors explaining fertility differentials in India (Basu, 1992; Malhotra, Vanneman and Kishor, 1995). The prevailing hypothesis is that the higher and more autonomous status of women in southern India accounts for its lower fertility compared with that of northern India (Dyson and Moore, 1983). Fertility has even fallen close to replacement levels in several poor States, characterized by greater female autonomy and greater progress in mortality reduction and literacy. Sri Lanka, in spite of limited economic development, also shows a low fertility level (2.3 children per woman), which is most likely associated with the combination of a well-organized family planning programme, low mortality and high female literacy.

In South-eastern Asia, sustained fertility reductions have also occurred, most notably in Thailand and Indonesia. Thailand has rapidly moved from high to replacement-level fertility. Thai society is characterized by considerable female autonomy, not only on reproductive issues but also in other areas of life (Knodel, Chamratrithirong and Debavalya, 1987). Indonesia constitutes an example of rapid fertility decline occurring within the context of significant social and economic development and an effective family planning programme, operational at the grass-roots level (Warwick, 1986). Myanmar and Viet Nam have also experienced significant fertility reductions, despite limited socio-economic development.

Western Asia displays the highest fertility in Asia. However, countries with fertility levels below 3 children, such as Armenia, Azerbaijan, Cyprus, Georgia, Israel and Turkey, coexist with countries and areas in the region that have high fertility, such as the Gaza Strip, Oman and Yemen, whose average fertility exceeds 7 children. Many Western Asian countries have either weak family planning programmes or no programmes at all (Mauldin and Ross, 1991). However, recent data from the Gulf Child Health Surveys indicate that several countries in the region are also on the fertility transition path.

In Latin American and the Caribbean, fertility levels fell from 3.8 in 1980-1985 to 3.1 in 1990-1995, the largest reduction observed at the regional level (19 per cent). However, considerable variation in reproductive behaviour can be observed throughout the region, with socio-economic differentials largely explaining the heterogeneity of fertility levels and trends (International Union for the Scientific Study of Population, 1990). Marked differentials in childbearing patterns are also observed within countries between rich and poor, urban and rural, and educated and illiterate strata (Chackiel and Schkolnik, 1992).

The Caribbean has the lowest fertility within the region, an average of 2.8 children, and has experienced only a modest fertility reduction during the past decade. However, fertility is far from homogeneous within this subregion. Countries with high fertility, for example, Haiti (TFR of 5.8 children) coexist with such countries with low fertility as Cuba (TFR of 1.5 children).

Although Central America had the largest fertility reduction during the past decade (23 per cent), average fertility remains the highest in the region (3.5 children per woman). Fertility levels exceeding 5 children are currently observed in Guatemala and Honduras.

Overall fertility in South America fell from 3.7 in 1980-1985 to 3.0 in 1990-1995, a reduction of 19 per cent. Most countries in the subregion have a relatively moderate level of fertility, although fertility remains high in Bolivia (TFR of 4.8) and Paraguay (TFR of 4.7). Argentina and Uruguay both had completed their fertility transition as early as 1950 and in the past four decades fertility has changed little, remaining well above replacement level. Chile also has stable fertility at the same level.

In the more developed regions, fertility has continued its downward trend. Average fertility has been below two children since the mid-1970s. This lasting low-fertility context has raised considerable debate on the institutional changes necessary to accommodate the economic and social consequences of population ageing (Warnes, 1993; United Nation, Economic Commission for Europe, 1994). Although all developed regions have followed similar demographic trajectories, some distinctive features and trends can be highlighted. In Northern America, for example, contrary to the general trend, fertility has been rising during the past decade, from 1.8 in 1980-1985 to 2.1 in 1990-1995.

The overall fertility level in Europe has been below replacement since the mid-1970s and has recently experienced a further decline, from 1.9 in 1980-1985 to 1.6 in 1990-1995. Although the degree of homogeneity in reproductive behaviour is greater than in other regions, some subregions have recently departed from the overall downward trend. During the past decade, a slight rise in fertility has been observed in Northern Europe. Some countries that had achieved very low fertility in the past, such as Denmark, Finland, Norway and Sweden, have recently experienced an increase in fertility towards the replacement level. Part of this increase can be attributed to a timing effect on fertility indicators: a widespread pattern of birth postponement had previously underestimated fertility measures. However, there are strong indications that public policies directed to improving the standard of living of

families, particularly single and working parents, and to making more compatible women's aspirations for children and career-oriented work also had a major bearing (Hoem, 1993).

Southern Europe has experienced the largest fertility reduction within the region (22 per cent during the past decade) and currently has the lowest average fertility (1.4 children). Within this subregion, Spain and Italy have the lowest fertility levels currently observed in the world (1.2 children) (Delgado Pérez and Livi-Bacci, 1992). This dramatic decline can be attributed in part to the impact of marriage and first-birth postponement on overall measures of fertility. A major factor in the decline has also been the remarkable speed at which the roles of women have changed, owing to large gains in the educational and work domains, combined with the slowness of the institutional changes necessary to reconcile their new roles in the labour force with child-rearing (Castro Martín, 1992).

The new political and economic context in Eastern Europe has had a significant impact on demographic processes. Recent data show that the downward trend in fertility has accelerated and that most Eastern European countries are currently well below replacement level (Althaus, 1992). Demographic responses to unemployment, economic uncertainty and political instability are easily illustrated by the rapid drop in the level of fertility since 1990 (Holzer, 1995). This decline took place in spite of the shortage of modern family planning services in most of the countries with former centrally planned economies. In 1993, total fertility rates, ranging from 1.3 to 1.4, were reported in Bulgaria, Romania, the Russian Federation and Slovenia. However, the most spectacular drop in fertility was recorded in the former German Democratic Republic (Pohl, 1995; White and Wagner, 1995). The total fertility rate dropped from the already low level of 1.5 in 1990 to 0.8 in 1994. Such an abrupt drop in fertility is unprecedented for an industrialized society during peacetime (Eberstadt, 1994).

The round of internationally comparable Family and Fertility Surveys (FFS) recently launched by the Economic Commission for Europe (ECE) will shortly enhance the understanding of the determinants and context of reproductive behaviour in Europe. The availability of detailed marital and childbearing histories will allow the complex links between reproductive behaviour and union formation and dissolution to be explored, and the analysis of fertility to be made parity- and birth interval-specific (Hobcraft, 1993).

B. ADOLESCENT CHILDBEARING

In recent decades, adolescent childbearing has emerged as an issue of increasing concern throughout the developing and the developed world. This concern derives primarily from the desire to improve the social status of adolescent girls and to safeguard the health of young mothers and their children. The United Nations designated 1985 as International Year of Youth: Participation, Development, Peace and, in the course of the past decade, studies on adolescent issues proliferated, creating a new awareness of the problems and special needs of young women and men (Liskin and others, 1985; Senderowitz and Paxman, 1985; United Nations, 1988 and 1989; Friedman, 1992; International Planned Parenthood Federation, 1994; Gage, 1995). At the International Conference on Population and Development, held at Cairo in 1994, the vulnerability of adolescents to greater risks in reproductive health-related areas was given special consideration (United Nations, 1995a).

Although the adolescent years are universally regarded as a period of physical, emotional and social maturation, the definition, onset and duration of adolescence vary across social and cultural settings (Friedman, 1993). In many developing societies, for example, children often undertake adult responsibilities and contribute to the family economy (United Nations Children's Fund, 1995), so the period of adolescence may not be clearly demarcated.

There is a growing awareness that early childbearing may jeopardize efforts to improve the status of women. Numerous studies have exposed the adverse health, economic, social and psychological conditions faced by "children having children". Early childbearing may pose a health risk for the mother and the child and often truncates a girl's educational career, threatening her economic prospects, earning capacity and overall well-being. Young mothers may pass on to their children a legacy of poor health, deficient education and subsistence living, creating a hard-to-break cycle of poverty.

From the health standpoint, the dangers of giving birth at a very young age have been widely documented.

Physically immature, often undernourished and poorly informed about sexual and reproductive health, young girls face a higher risk of death from pregnancy and childbirth than mature women. Pregnancy-related complications are a leading cause of mortality among adolescent girls in many countries. Unsafe abortion is also responsible for a large number of adolescent deaths. Although national data often combine all women aged 15-19, women younger than age 18 face considerably greater health risks.

Children of teenage mothers have also been shown to be at disadvantage in terms of prematurity, low birth weight, and perinatal and infant mortality (United Nations, 1994). There is evidence suggesting that a large proportion of adolescent pregnancies are unplanned. The problems posed to any couple by an unintended pregnancy are clearly intensified for teenagers, who have not yet reached adulthood and independence, and are ill-equipped to assume the responsibilities of parenthood.

A substantial body of research maintains that the impact of maternal age on obstetric and neonatal outcomes stems not from strictly biological factors but from behavioural and socio-economic factors (Makinson, 1985; Geronimus, 1991). Some studies have shown that pregnancy complications and elevated child mortality risks are largely explained by impoverished living conditions, poor nutrition and inadequate antenatal care among adolescent mothers (LeGrand and Mbacké, 1993).

Many of the adverse health consequences of young childbearing could be greatly reduced or eliminated with adequate education and medical attention (Govindasamy and others, 1993). However, many young women in developing countries do not have access to health services that could provide them with adequate standards of antenatal care and delivery. The association between young maternal age and low utilization of prenatal care services is considerably more pronounced among unmarried adolescents. Young unmarried women who become pregnant may delay prenatal care for fear of social sanctions and, in some countries, because of negative attitudes of health-care providers towards young single women who are sexually active.

Another major health hazard that young people face are sexually transmitted diseases. The risk of contracting sexually transmitted diseases is greater for young girls than mature women because of such biological factors as hormonal fluctuations and permeability of key tissue walls. Also, the association between early sexual activity and a larger number of sexual partners may also underlie the recent increase in the incidence of sexually transmitted diseases among adolescents (Friedman, 1989). This trend has become increasingly worrisome in light of the rapid spread of the human immunodeficiency virus (HIV) in both developing and developed countries (Brooks-Gunn and Furstenberg, Jr., 1990). Despite these risks, a large proportion of sexually active teenagers take no effective precautions to prevent pregnancy or sexually transmitted diseases. Early diagnosis and treatment of sexually transmitted diseases are also complicated by the fact that most health-care systems are not readily accessible to adolescents.

From the social standpoint, adolescent childbearing usually interferes with efforts to enhance women's education and work qualifications. Becoming a mother very early in life tends to generate poverty by blocking a woman's avenues for social advancement: it usually truncates her education and reduces her employment prospects (Hofferth and Hayes, 1987; Ferrando, 1993). In many countries, the consequences of teenage childbearing are exacerbated by policies or traditions that require pregnant girls to leave school.

The economic repercussions of teenage pregnancy in developed countries constitute an issue of broad public concern. Studies in the United States of America show that women who became mothers during adolescence are disproportionately represented among the poor and those receiving public assistance. The difficulty of finding remunerative employment with insufficient educational credentials and the costs of childcare often preclude teen mothers from becoming economically self-supporting. The poor situation of teen mothers is also a reflection of the low levels of the fathers' financial and emotional commitment to children born out of wedlock (Furstenberg, Jr., and Harris, 1993).

In developing countries, adolescent childbearing takes place largely within marriage and the sharing of parenting responsibilities by the extended family may act as a buffer against economic hardship. However, reluctance or inability of spouses to provide support for mothers and children, combined with the absence of state welfare programmes directed to correcting social disadvantages, is an important factor leading to poverty among adolescent mothers (Omololu, 1994).

In addition to compromising women's educational pursuits, economic prospects and personal development, young motherhood has negative consequences for marital stability (Bumpass, Castro Martín and Sweet, 1991) and, in the case of premarital pregnancy, it may precipitate entry into marriage with a greater likelihood of conjugal mismatch. Also, teen motherhood may be detrimental to children's well-being and life chances. A young mother's emotional immaturity, economic hardship, lack of education and heavy workload often mean that her children may be given less care than they require, resulting in poor cognitive development and low school achievement (Moore and Snyder, 1991).

Although most of the literature on the repercussions of early childbearing focuses on the adolescent mother, a few studies have given some attention to the adolescent father. In general, young fathers are less adversely affected by early childbearing than young mothers (Card and Wise, 1981). However, some studies have shown that teenage parenthood negatively affects men's educational and occupational careers as well (Marsiglio, 1986; Brown and Jaspard, 1995).

It is estimated that about 15 million girls aged 15-19 give birth throughout the world each year (United Nations, 1995d) and that about 11 per cent of all children are currently born to adolescents (annex table A.9). However, there is wide variation across regions and countries.

Figure 5 presents adolescent fertility rates at the regional level for the period 1990-1995, based on the United Nations estimates (United Nations, 1995d), and annex tables A.3 and A.4 present adolescent fertility trends since 1970 at the country level, based on demographic surveys, national statistical abstracts and vital registration data. Adolescent fertility is conventionally measured as the number of births per 1,000 women aged 15-19. As shown in figure 5, the global rate of teenage fertility is estimated to be 60 births per 1,000 women under age 20. The level of adolescent fertility in developing countries (65 births per 1,000) is twice as high as that in developed countries (32 births per 1,000); and the least developed countries have an average adolescent fertility rate (140 births per 1,000) that is about four times higher than that observed in developed countries.

Within the developing regions, adolescent fertility levels are highest in Africa (136 births per 1,000), followed by Latin America and the Caribbean (79 births per 1,000), and lowest in Asia (45 births per 1,000). Much of the observed variation in adolescent fertility rates reflects prevailing marriage patterns. In many societies, very early marriage contributes to elevated rates of childbearing among teenagers. Although several countries have raised the legal age at marriage, this measure has had only limited impact in traditional societies where early marriage and childbearing have long been promoted by social and cultural mores.

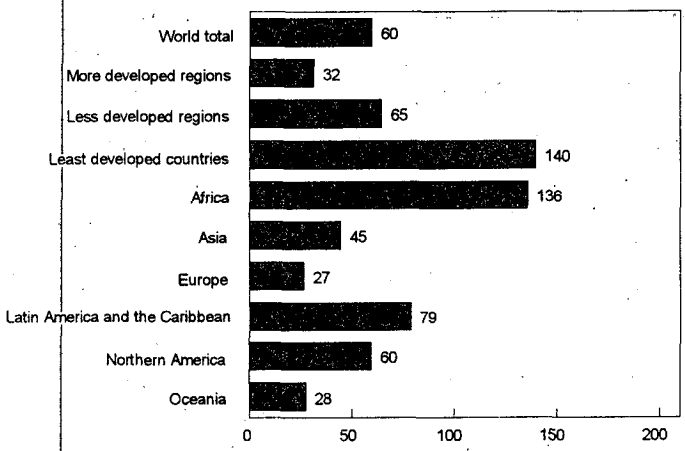
Adolescent fertility is highest in Africa (Gyepi-Garbrah, Nichols and Kpedekpo, 1985; Cherlin and Riley, 1986), particularly in Middle, Western and Eastern Africa (207, 164 and 151 births per 1,000 respectively). Annex table A.3 shows that in sub-Saharan Africa, teenage birth rates range from a high of more than 200 births per 1,000 in the Niger, Mali and Sierra Leone to a low of approximately 50 births per 1,000 in Burundi, Lesotho, Mauritania, Mauritius, South Africa and Swaziland, but most countries register levels of above 100 births per 1,000. In Northern Africa, adolescent fertility rates are generally lower and countries such as Algeria, Morocco and Tunisia register rates of fewer than 50 births per 1,000.

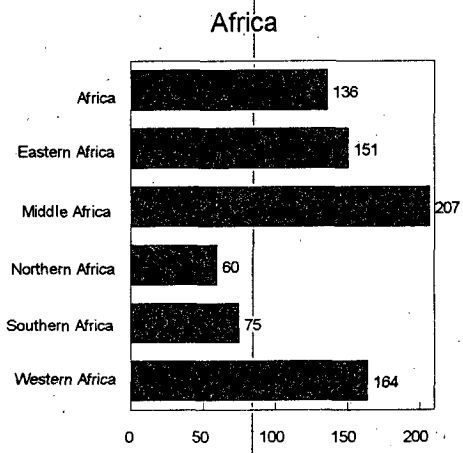
Within Asia, teenage fertility rates are highest in South-central Asia (73 births per 1,000), where Bangladesh, India and the Islamic Republic of Iran register levels exceeding 100 births per 1,000, and lowest in Eastern Asia (14 births per 1,000) and South-eastern Asia (47 births per 1,000). In Western Asia, countries with low levels of adolescent fertility, such as Azerbaijan, Bahrain, Cyprus and Israel (below 30 births per 1,000) coexist with countries with high levels of teenage childbearing, such as Oman and Yemen (above 100 births per 1,000).

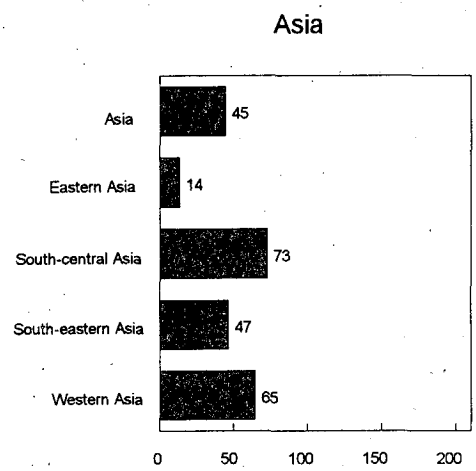
Teenage fertility is generally high in Latin America (Singh and Wulf, 1990; Yinger and others, 1992; Omran and others, 1992). Fertility rates that exceed 100 births per 1,000 can be observed in Haiti and Jamaica in the Caribbean; El Salvador, Guatemala, Honduras and Mexico in Central America; and Venezuela in South America.

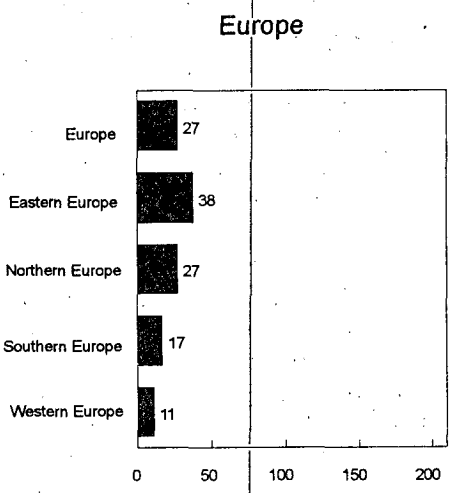
Although in developed countries the level of adolescent fertility is relatively low, teenage pregnancy constitutes a major concern. In most of these societies, effective methods of contraception are readily available, but teenagers have insufficient access to them and are likely to use them sporadically or ineffectively (Jones

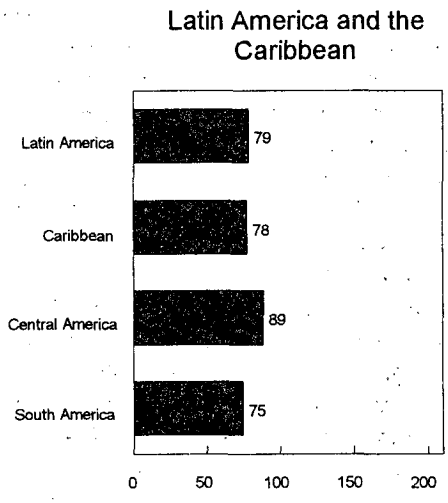
Figure 5. Age-specific fertility rates (per 1,000 women) for age group 15-19, major areas and regions of the world, 1990-1995











Source: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

and others, 1986; Trussell, 1988). Among the industrialized countries, the United States has the highest level of teenage births: 78 births per 1,000, three times the level of Canada (Forrest, 1990). In Europe, early childbearing is more prevalent in Eastern Europe, reflecting in part a pattern of earlier marriage and lower availability of contraception.

Not only are the levels of adolescent childbearing so diverse that they defy generalization but also the social and cultural contexts surrounding it. In most countries in sub-Saharan Africa, for instance, adolescent childbearing is the norm rather than the exception and early motherhood is considered socially desirable (Bledsoe and Cohen, 1993). The prevailing pattern of early marriage is the major factor contributing to the persistent high levels of teenage childbearing. In the Niger, for example, which registers the highest rate of adolescent fertility in the world, the median age at marriage is 15.1 (Kourguéni, Garba and Barrère, 1993). With the exception of a few countries, notably Botswana, Kenya, Liberia and Namibia, most adolescent pregnancy occurs within marriage, although there is an increasing tendency for women to engage in premarital sexual activity and childbearing (Gage-Brandon and Meekers, 1993).

In developed countries, on the other hand, adolescent childbearing is relatively uncommon: it occurs largely out of wedlock and is selective of socio-economic disadvantaged groups of women (Alan Guttmacher Institute, 1994). Marriage is increasingly postponed, in part because of improved female education and labour force participation, and teenagers are becoming sexually active at increasingly younger ages, resulting in lengthened periods of exposure to out-of-wedlock pregnancy. These changes have been accompanied by a growing acceptability of premarital sexual activity during adolescence, before only reserved to males, and a lessening of social sanctions against children born out of wedlock.

The social context of adolescent fertility and the support networks that are available to women may determine not only the economic and social costs but also the psychological costs of early childbearing (Gage, 1995). The negative consequences of adolescent fertility in a setting where educational and employment opportunities for adolescents are limited and where early marriage and early childbearing are the norm stem mainly from biological factors and general lack of health services. However, childbearing among unmarried adolescents carries with it such additional problems such as lack of partner's support, social stigma, higher risk of unsafe abortion and lower use of prenatal health services. The children of unmarried mothers may also suffer from limited kinship networks and restricted access to property and inheritance.

Although adolescent fertility is increasingly perceived as an issue of social and policy concern, this does not necessarily mean that teenage fertility rates have increased over time. Worldwide, fertility rates among women under age 20 have been falling alongside overall fertility rates, although in some areas the share of births to teen mothers has increased because of the slower pace of decline, and the total number of births to adolescents has risen, owing to a larger adolescent population. Although the level of teenage fertility remains high in many countries, adolescent fertility rates seem to be declining in most countries of the world, because of rising age at marriage, increasing educational and economic opportunities for young women, changes in social customs and increased use of contraception. There are, however, some exceptions to the overall downward trend—for example, in India and Haiti in the developing regions and the United States in the developed regions.

Despite the broad diversity in the levels and social contexts of adolescent fertility, the prevailing rates of unintended pregnancy, the number of deaths from unsafe abortions, and the increasing incidence of sexually transmitted diseases suggest that adolescents' needs for reproductive health services are not adequately met in most parts of the world. Since adolescents are usually outside the existing channels for sexual, contraceptive and health information, reproductive health services need to be redesigned in order to respond to the needs of adolescents, married or unmarried (Bongaarts and Bruce, 1995). Education is widely acknowledged as the key basis for informed decision-making on matters of sexuality and reproduction. Contrary to widespread misconceptions, studies have shown that sex education programmes do not lead to increased sexual activity among adolescents, but influence adolescents to protect themselves from unwanted pregnancies and sexually transmitted diseases (Furstenberg, Jr., Moore and Peterson, 1985). Young men also need to be further sensitized to the needs of their partners, emphasizing their joint responsibility in sexual behaviour, contraception, reproduction, parenting and family health.

C. WOMEN'S EDUCATION AND REPRODUCTIVE BEHAVIOUR

Education has long been recognized as a crucial factor influencing reproductive behaviour. Schooling provides literacy skills, stimulates cognitive development, promotes change in values and opens up economic opportunities. These cognitive, attitudinal and socio-economic assets have a pervasive influence on men's and women's lives, shaping both their productive and their reproductive roles.

The association between women's education and childbearing behaviour has been a recurrent theme in the demographic literature (Cochrane, 1979; Cleland and Rodríguez, 1988; Jejeebhoy, 1992 and 1995). The availability of data for a large number of countries participating in the WFS in the late 1970s improved considerably the understanding of the relationship (United Nations, 1987). A recent United Nations study prepared by the Population Division has updated existing empirical evidence on the linkages between women's education and reproductive behaviour from a cross-national perspective (United Nations, 1995c).

Table 22 presents fertility rates for women in various educational categories for 26 countries where DHS were conducted in the late 1980s. According to those data, advanced female education is universally linked to lower fertility. In every country examined, women with 10 or more years of schooling have fertility levels substantially lower than women that have not attended school. Latin American countries have the largest fertility gaps, ranging from 3 to 5 children, between better-educated and uneducated women.

Fertility differentials by education are not, however, uniform across countries, suggesting that the resultant effect of women's education is conditioned by socio-economic development, social structure and cultural context. In contemporary developing societies, the impact of individual schooling on childbearing tends to become stronger as the socio-economic conditions and the overall educational level of the society improve.

A few exceptions to the standard inverse relationship between female education and fertility have been found. In some developing countries, women with incomplete primary schooling have slightly higher fertility than women with no schooling. Compared with the empirical patterns documented a decade ago, the fertility-enhancing impact of education has become increasingly rare. A curvilinear relationship between women's education and fertility was found in 14 of 38 countries with WFS data (United Nations, 1987). By contrast, that pattern was found in only 3 of 26 countries with DHS data, namely, Burundi, Kenya and Liberia (United Nations, 1995c).

The slightly higher fertility among women with a few years of schooling should be interpreted not as evidence of a pronatalistic influence of education, but as a by-product of the system of relationships between education and the proximate determinants of fertility at the early stages of the fertility transition. Education tends to increase fecundity by means of improved maternal health, reduce foetal deaths and diminish the protection against short-spaced pregnancies traditionally provided by prolonged breastfeeding and post-partum sexual abstinence. In the absence of deliberate fertility regulation, these changes may increase the level of childbearing.

However, even in less developed societies where the impact of a few years of education on fertility is negligible, if not positive, the relationship turns unequivocally negative once a certain level of education is surpassed. This critical level of educational attainment, located around the completion of primary school, coincides with the stage usually required for having acquired basic literacy and numeracy skills.

The direct and indirect paths through which female education influences reproductive behaviour are numerous. Education is associated with later entry into marriage, preferences for smaller families and increased awareness, acceptability and use of contraception. Unwanted or unplanned fertility is also lowest among better-educated women, suggesting that education enables reproductive choice and enhances women's control over the process of family formation.

Regarding the relative influence of women's and men's education on the process of family-building, multivariate analyses have shown that in most countries female education has a stronger impact on fertility-related behaviour than male education, particularly on family size preferences and contraceptive use (United Nations, 1995c).

Despite universal recognition that women's education is crucial for the development process and largely

TABLE 22. TOTAL FERTILITY RATES[a] ACCORDING TO WOMEN'S YEARS OF EDUCATION

Region and country	Total	Years of education					Difference 0-10+	Mean number of years of education
		0	1-3	4-6	7-9	10+		
Africa								
Botswana	5.0	5.9	5.6	5.1	4.5	3.1	-2.8	5.5
Burundi	7.0	7.0	7.4	6.7	(6.6)	(4.2)	-2.8	0.9
Egypt[a]	4.7	5.7	5.3	4.2	3.4	3.4	-2.3	4.9
Ghana	6.4	7.1	6.6	6.4	6.8	4.9	-2.2	5.2
Kenya	6.7	7.2	7.5	7.5	6.2	4.6	-2.6	2.6
Liberia	6.6	6.8	7.1	7.5	5.7	4.2	-2.6	0.9
Mali	6.9	7.0	6.9	6.6	5.7	(4.7)	-2.3	1.5
Morocco[b]	4.9	5.5	3.9	2.9	2.4	2.2	-3.3	2.3
Senegal	6.6	7.0	6.4	5.5	4.3	3.6	-3.4	3.3
Togo	6.6	7.2	7.1	6.0	3.9	4.8	-2.4	6.0
Tunisia[b]	4.4	5.1	4.7	3.7	2.8	2.6	-2.5	3.1
Uganda	7.3	7.7	7.4	7.0	7.2	5.3	-2.4	1.1
Zimbabwe	5.7	7.3	7.2	6.3	5.0	3.3	-4.0	2.8
Asia								
Indonesia[b]	3.4	3.8	4.0	3.6	2.8	2.6	-1.2	4.3
Sri Lanka[b]	2.8	2.8	3.0	2.9	2.7	2.7	-0.1	6.3
Thailand[b]	2.4	3.5	2.8	2.5	2.1	1.5	-2.0	4.8
Latin America and the Caribbean								
Bolivia	5.1	6.2	6.4	5.3	4.2	2.8	-3.4	5.9
Brazil[c]	3.7	6.7	5.2	3.4	2.8	2.2	-4.5	5.9
Colombia	3.3	5.6	4.5	3.6	2.5	1.8	-3.8	5.8
Dominican Republic	3.8	5.8	5.0	4.4	3.5	2.6	-3.2	6.8
Ecuador	4.3	6.4	6.3	4.7	3.5	2.6	-3.8	7.1
El Salvador	4.4	6.0	5.2	3.9	3.5	2.5	-3.5	4.8
Guatemala[c]	5.6	6.9	5.6	4.2	2.8	2.7	-4.2	3.1
Mexico	4.1	6.4	6.3	4.0	2.7	2.4	-4.0	6.2
Peru	4.5	7.4	6.1	4.6	3.7	2.5	-4.9	6.2
Trinidad and Tobago	3.1	(2.3)	4.3	3.6	3.8	2.9	0.6	8.7

Source: *Women's Education and Fertility Behaviour: Recent Evidence from the Demographic and Health Surveys* (United Nations publication, Sales No. E.95.XIII.23).

NOTES: Figures within parentheses are based on fewer than 100 births.

[a]Based on the five-year period prior to the survey.

[b]Ever-married sample. Estimates for all women are derived by applying a multiplication factor based on information from the household questionnaire.

[c]Based on women aged 15-44.

conditions women's productive and reproductive behaviour (United Nations Population Fund, 1995), the achievement of universal literacy and gender equality in education is still far from being reached in many countries. Recent educational trends provide some basis for optimism: school enrolment is one of the few development indicators that have improved steadily in almost all developing countries over the past decades, and the gender gap at the primary school level has narrowed considerably.

D. INITIATION OF CHILDBEARING AND DURATION OF THE CHILDBEARING SPAN

While information on fertility levels and trends is important, knowledge about the dynamics of childbearing, usually through the analysis of the detailed birth histories collected in fertility surveys, is of most consequence for learning about women's reproductive lives and family-building patterns. The present section is organized around two key aspects of reproductive

behaviour: the initiation of the reproductive process and the duration of the childbearing span, that is to say, the interval between the first and the last birth.

The transition to motherhood is one of the major events in a woman's life course, bringing about crucial changes in her activities and responsibilities. The timing of the onset of childbearing has significant implications for individuals, families and societies. A woman's age at first birth influences the number and timing of her subsequent children (Bumpass, Rindfuss and Janosik, 1978). Earlier initiation of childbearing usually implies either a higher level of lifetime fertility or a longer period of exposure to the risk of having an unwanted birth once the desired family size has been attained. Women's age at the initiation of the reproductive process also has a significant impact on maternal and child health. Infant and child mortality tend to be higher among children born to women under age 18 (United Nations, 1994). Likewise, maternal morbidity is greater among very young mothers and among women of advanced maternal age. More generally, a woman's age at first birth will largely condition her lifetime educational and employment experiences (Rindfuss, Bumpass and St. John, 1980).

In most societies, the onset of childbearing is closely linked to the timing of marriage: the average age at first birth typically falls within one and two years after the average age at first marriage (Westoff, Blanc and Nyblade, 1994). However, there exists considerable variation both within and between world regions regarding the patterns of early family formation. Although in many societies the initiation of childbearing takes place primarily within the context of marital unions, in an increasing number of societies entry into motherhood is largely dissociated from entry into marriage. Therefore, the postulate of conventional demographic analysis assuming that entry into first marriage heralds the onset of sexual activity and the initiation of exposure to pregnancy is inaccurate for many developing and developed societies. In many sub-Saharan African countries, for example, the onset of sexual activity precedes marriage and premarital childbearing is frequent (Meekers, 1993). In Botswana, Liberia and Namibia, for instance, more than 40 per cent of never-married women have at least one child (Westoff, Blanc and Nyblade, 1994). In developed countries, the link between marriage and first birth is loose not only because of the prevalence of premarital sexual activity and childbearing, but also because of the increasing tendency to postpone first births within marriage (Desplanques and Saboulin, 1986; McDaniel, 1989; Rindfuss and Parnell, 1989).

Table 23 confirms that formal marriage is not the only context where childbearing takes place, and that the trend of bearing children outside legalized unions has recently accelerated both in developed and in developing regions. Although in some developed countries, such as Japan, Belgium, the Netherlands, Switzerland, Southern European countries and most Eastern European countries (except Bulgaria, Slovenia and the former German Democratic Republic), out-of-wedlock childbearing is relatively uncommon, in most of the developed world the rapid increase in childbearing outside marriage, closely linked to the rise in cohabitation, has been a significant social development during the past decade (Bumpass, 1990). The proportion of births to unmarried women constitutes about one fourth of all births in Australia, Austria, Canada, Finland and the United States; about one third of all births in Estonia, France, New Zealand and the United Kingdom of Great Britain and Northern Ireland; and about half of all births in Denmark, Iceland, Norway and Sweden. In the developing regions, out-of-wedlock childbearing is relatively rare in Asia, but commonplace in Latin America and the Caribbean, reflecting the high prevalence of consensual unions. The proportion of births outside formal marriages is about one fourth in Mexico and Uruguay; about one third in Argentina, Chile, Costa Rica and Paraguay; and more than two thirds in El Salvador, Jamaica and Panama.

Despite the importance of the timing of initiation of childbearing, detailed information on women's age at first birth has often been difficult to obtain from developing countries before nationally representative fertility surveys became available. The detailed birth histories collected in the WFS allowed in-depth analyses of first-birth patterns in a large number of developing countries (Casterline and Trussell, 1980; Pebley, Casterline and Trussell, 1982; Hobcraft, 1985; Mason and Entwisle, 1985; Trussell and Reinis, 1989). Recent data from the DHS provide updated information on the timing of first births in developing countries (Westoff, Blanc and Nyblade, 1994; Blanc and Rutenberg, 1990).

Table 24 presents women's median age at first birth, that is to say, age at which at least half of the women have had their first birth, for 41 developing countries. According to these data, the timing of entry into motherhood appears remarkably similar across a wide range of

TABLE 23. PERCENTAGE OF BIRTHS TO UNMARRIED WOMEN, DEVELOPED AND DEVELOPING REGIONS

Subregion and country	Developed regions, 1970-1992		
	1970	1990	1992
Eastern Europe			
Belarus	7	9	..
Bosnia and Herzegovina	5	7	..
Bulgaria	9	12	19
Croatia	5	7	8[a]
Czech Republic	..	9	10[a]
Hungary	5	13	16
Poland	5	6	7
Romania	4	4	..
Russian Federation	..	15	..
Slovakia	..	8	..
Slovenia	9	25	28
The former Yugoslav republic of Macedonia	6	7	..
Ukraine	9	11	12[a]
Western Europe			
Austria	13	24	25
Belgium	3	12[b]	..
Denmark	11	46	47[a]
Estonia	14	27	31[a]
Federal Republic of Germany[c]	6	11	12
Finland	6	25	27
France	7	30	32
Germany	7	15	15[a]
German Democratic Republic[c]	13	35	42
Greece	1	2	3
Iceland	30	55	57
Ireland	3	15	18
Italy	2	7	7
Latvia	11	17	20
Lithuania	4	7	8
Luxembourg	4	13	13
Netherlands	2	11	13
Norway	7	39	43
Portugal	7	15	16
Spain	1	10	..
Sweden	18	47	50
Switzerland	4	6	6
United Kingdom of Great Britain and Northern Ireland	8	28	31
Other developed countries			
Australia	8	22	24
Canada	10	23[b]	..
Japan	2	1[d]	..
New Zealand	13	34	36[a]
United States of America	11	..	28

Subregion and country	Developing regions, 1980-1990		
	1980	1985	1990
Latin America and the Caribbean			
Argentina	30	..	..
Belize	52	54	..
Chile	28	32	34
Costa Rica	35	38	41
El Salvador	69	67	..
Jamaica	82	84	..
Mexico	24	28	..
Panama	71	72	75
Paraguay	34	33	31
Uruguay	25	26	..
Asia			
Armenia	4	7	5
Azerbaijan	3	3	4
Georgia	5	11	19
Israel	3	1	..
Kazakhstan	10	10	13
Kyrgyzstan	11	10	12
Philippines	5	6	..
Republic of Korea	1	1	..
Sri Lanka	6	..	..
Tajikistan	7	5	8
Turkmenistan	3	4	4
Turkey	3	4	4
Uzbekistan	4	3	4

Source: The World's Women, 1995: Trends and Statistics, Social Statistics and Indicators, No. 12 (United Nations publication, Sales No. E.95.XVII.2 and Corr.1), chap. 1, charts 1.27A and 1.27B, p. 19.

[a]Data referring to 1991.

[b]Data referring to 1989.

[c]Through accession of the German Democratic Republic to the Federal Republic of Germany with effect from 3 October 1990, the two German States have united to form one sovereign State. As from the date of unification, the Federal Republic of Germany acts in the United Nations under the designation "Germany". For some statistical data that predate the unification, it has been necessary to refer occasionally to the former States of the Federal Republic of Germany and the German Democratic Republic.

[d]Data referring to 1985.

TABLE 24. SELECTED INDICATORS OF WOMEN'S REPRODUCTIVE LIVES

Region and country	Year of survey	Median age at first birth[a]	Years between first and last birth[b]	Years spent pregnant[c]	Years spent with a child under age 6[d]
Africa					
Botswana	1988	19.6	17.4	3.7	19.1
Burkina Faso	1993	19.1	19.2	5.2	22.5
Burundi	1987	21.0	18.1	5.2	20.9
Cameroon	1991	18.7	18.0	4.4	19.1
Egypt	1992	21.2	14.5	2.9	15.2
Ghana	1988	19.5	18.9	4.8	20.8
Kenya	1993	19.1	18.1	4.1	18.9
Liberia	1986	19.4	17.7	5.0	19.9
Madagascar	1992	19.2	18.5	4.6	18.6
Malawi	1992	19.0	18.8	5.0	20.1
Mali	1987	19.0	19.0	5.3	21.3
Morocco	1992	22.1	16.4	3.0	17.1
Namibia	1992	21.0	16.4	4.1	18.0
Niger	1992	18.1	19.3	5.6	20.6
Nigeria	1990	19.7	17.5	4.5	19.2
Rwanda	1992	21.5	18.4	4.7	20.8
Senegal	1992/93	19.2	18.7	4.5	20.1
Sudan	1989/90	20.5	17.4	3.5	15.8
Togo	1988	19.2	19.3	4.8	21.8
Tunisia	1988	23.1	14.8	3.2	14.3
Uganda	1988/89	18.2	19.6	5.6	20.7
United Republic of Tanzania	1991/92	18.8	19.2	4.7	20.1
Zambia	1992	18.5	20.1	4.9	19.9
Zimbabwe	1988/89	19.5	17.9	4.1	19.8
Asia					
Indonesia	1991	20.1	13.7	2.3	12.9
Jordan	1990/91	21.2	17.4	4.2	17.1
Pakistan	1990/91	21.3	14.6	4.1	17.1
Philippines	1993	22.8	13.8	3.1	14.1
Sri Lanka	1987	24.0	11.6	2.0	11.0
Thailand	1987	22.4	11.4	1.7	10.5
Yemen	1991/92	20.4	17.0	5.8	21.2
Latin America and the Caribbean					
Bolivia	1989	21.0	15.5	3.8	16.9
Brazil[e]	1986	22.5	11.9	2.6	14.0
Colombia	1990	22.1	12.2	2.2	12.2
Dominican Republic	1991	20.9	11.6	2.5	12.4
Ecuador	1987	21.0	14.6	3.2	15.5
Guatemala[e]	1987	19.9	16.1	4.1	18.1
Mexico	1987	21.0	14.6	3.0	14.6
Paraguay	1990	21.7	15.4	3.5	16.7
Peru	1991/92	21.8	13.4	2.6	13.9
Trinidad and Tobago	1987	21.7	11.3	2.3	12.0

Source: Dara Carr and Ann Way, *Women's Lives and Experiences: A Decade of Research from the Demographic and Health Surveys* (Calverton, Maryland, Macro International, 1994).

[a]Based on women aged 25-49.

[b]Average number of years between first and last births among ever-married women aged 40-49.

[c]Number of years spent pregnant = TFR (0-2 years preceding survey) x 9/12.

[d]Average number of years between ages 15 and 49 a women would spend with at least one child under age 6 if current age-specific proportions of women with a child under age 6 remained constant.

[e]Sample of women aged 15-44.

developing countries: women's median age at first birth tends to fall between 19 and 22. Despite this general homogeneity of behaviour concerning the onset of childbearing, some variation can be observed between and within regions. A pattern of early motherhood is prevalent in Africa (Westoff, 1992). In 17 of the 24 African countries surveyed, at least half of the women have their first birth before age 20. In five of those countries, namely, Cameroon, the Niger, Uganda, the United Republic of Tanzania and Zambia, the median age at first birth is under 19. Entry into motherhood tends to occur later in the Asian countries surveyed, although there exists significant variation (Rindfuss, Parnell and Hirschman, 1983). Women's median age at first birth ranges from 20.1 in Indonesia to 24.0 in Sri Lanka. In Latin America and the Caribbean, the majority of women have their first birth in their late teens and early twenties. The median age at first birth is under 20 only in Guatemala. Brazil and Colombia have the latest average age at first birth, 22.5 and 22.1 respectively.

Regarding the trend in the timing of the onset of childbearing, the comparison of WFS and DHS data in figure 6 illustrates the recent evolution in age at first birth for 15 countries. Except in Indonesia, Philippines, Peru and Sri Lanka, where the median age at first birth has experienced a slight reduction, the observed trend has been towards an increasing age at first birth. This trend, which has accompanied the trend in marriage postponement, is probably associated with women's increased educational opportunities (United Nations, 1995c). Increases of three years or more in women's median age at birth of first child are observed in Jordan, the Sudan, Thailand and Trinidad and Tobago.

In most developed countries, entry into motherhood occurs at a later age than in developing countries. The trend observed in the past two decades has been towards a rising age at motherhood and a delayed pattern of family formation (Muñoz Pérez, 1986; Loh and Ram, 1990; Castro Martín, 1992). Most researchers attribute this trend to the changing roles of women associated with higher educational attainment and increased participation in the labour force (Rindfuss, Morgan and Swicegood, 1988), as well as to the wide acceptability and availability of contraceptives. Table 25 presents recent trends in the mean age at first birth for European countries. The increasing postponement of childbearing is apparent from these data (except in Eastern Europe), implying that a considerable proportion of women delay their first birth until quite late in their reproductive lives.

The level of fertility, the onset of childbearing and the prevailing spacing patterns determine the length of the childbearing period (McCauley and others, 1994). Table 24 presents information on the span of women's childbearing—that is, the average number of years between women's first and last birth.[1] The duration of the childbearing period is longest in Africa. Women at the end of their reproductive years have, on average, an interval that ranges from 15 to 20 years between their first and last child. This lengthy span can be attributed to a combination of a pattern of early childbearing and large family size. Because of their lower lifetime fertility, women in other regions typically spend fewer years of their adult lives involved in childbearing. In Asia, for example, the average interval between women's first and last birth is relatively short in Sri Lanka and Thailand (approximately 11 years), although longer in Yemen and Jordan (approximately 17 years). In Latin America and the Caribbean, it ranges from 11 years in Trinidad and Tobago to 16 years in Guatemala.

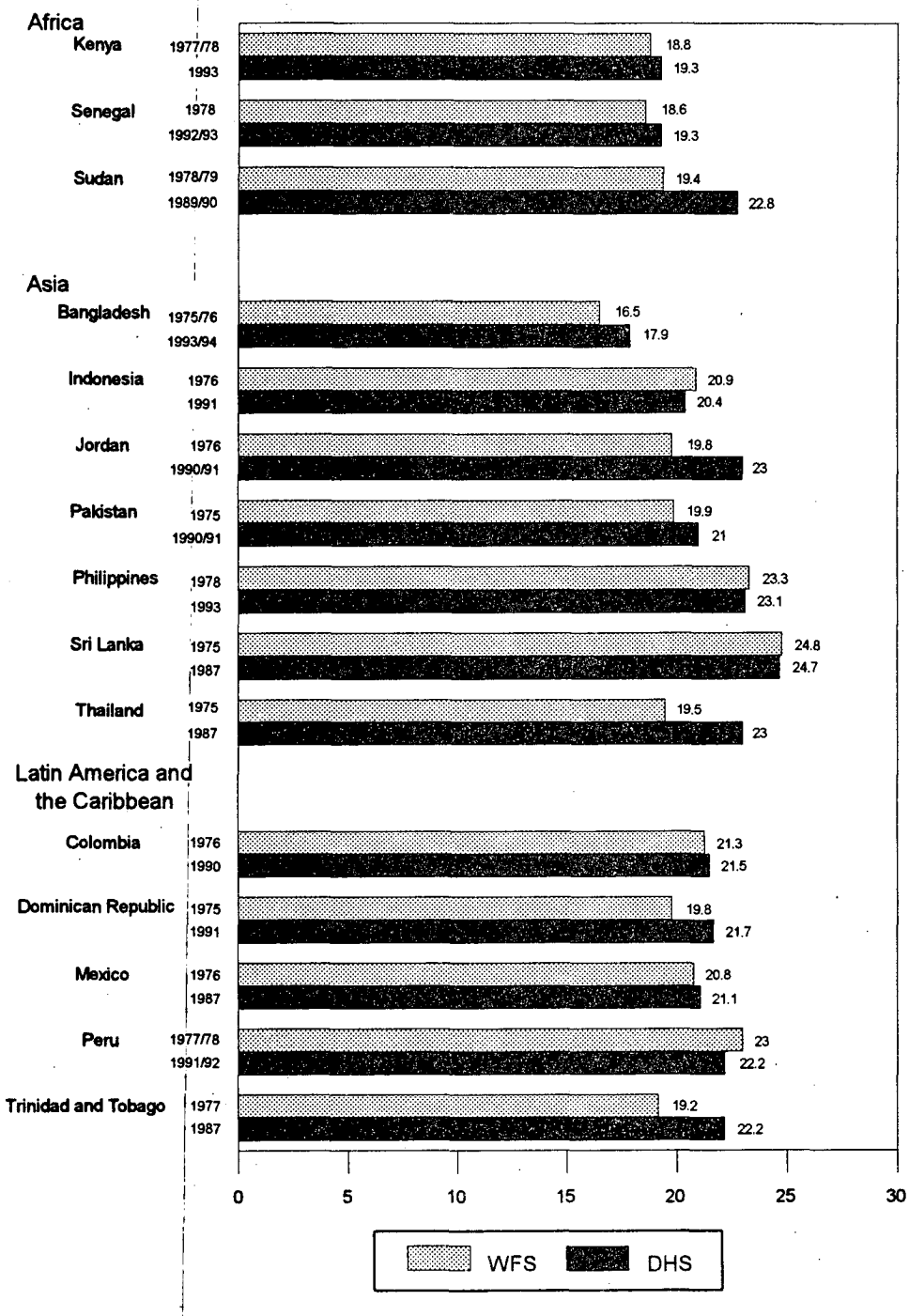
The average number of years women are pregnant during their reproductive lives is closely linked to the prevailing level of fertility. Table 24 shows that women spend between 2.9 and 5.6 years pregnant in Africa, between 1.7 and 5.8 years pregnant in Asia and between 2.2 and 4.1 years pregnant in Latin America and the Caribbean.

Both the number and the spacing of children determine the duration of the lifespan women devote to child-rearing. Table 24 presents the average number of years women spend with a child under age 6, which typically requires more intensive care. In most countries surveyed in Africa, women spend between 19 and 21 years with at least one young child. In Asia, women spend from 10 to 14 years with a young child in the household in Indonesia, the Philippines, Sri Lanka and Thailand, and from 17 to 21 years in Jordan, Pakistan and Yemen. In Latin America and the Caribbean, there is considerable variation: although in Colombia, the Dominican Republic, and Trinidad and Tobago, women spend approximately 12 years with young children, in Bolivia, Guatemala and Paraguay they spend more than 16 years.

E. Implementation of reproductive aspirations

Reproductive preferences play a crucial role in shaping the process of child-bearing, since it is the

Figure 6. Median age at first birth for women aged 25-29, World Fertility Survey, 1975-1978, and Demographic and Health Surveys, 1987-1994



Sources: John Hobcraft, "Family-building patterns", in *Reproductive Change in Developing Countries*, John Cleland and John Hobcraft, eds., in collaboration with Betzy Dinesen (London, Oxford University Press, 1985), p. 69, table 69; Charles F. Westoff, Ann K. Blanc and Laura Nyblade, *Marriage and Entry into Parenthood*, Demographic and Health Surveys Comparative Studies, No. 10 (Calverton, Maryland, Macro International, 1994), p. 34, table 34.

TABLE 25. TREND IN WOMEN'S MEAN AGE AT FIRST BIRTH, EUROPE, 1970-1993

Subregion and country	*Year*			
	1970	*1980*	*1990*	*1993*
Eastern Europe				
Belarus	..	..	22.3[a]	..
Bulgaria	21.9	21.9	22.0	21.8[b]
Czech Republic	22.5	22.4	22.5	..
Hungary	..	22.4	22.5	22.6[b]
Poland	22.5	23.0	23.0	22.6
Republic of Moldova	..	..	25.4	25.0[b]
Romania	22.6	25.2	25.1	22.4
Russian Federation	..	..	22.0[a]	..
Slovakia	21.7	22.4	22.1	21.9
Ukraine	..	..	..	..
Northern Europe				
Denmark	23.7	24.6	26.4	26.9[b]
Estonia	24.1	23.0	22.9	..
Finland	23.7	25.7	26.8	27.0[b]
Iceland	21.3	21.9	24.0	24.8[b]
Ireland	25.3	24.9	26.3	25.9[b]
Latvia	..	22.9	22.7	22.5
Lithuania	..	..	22.9	23.0
Norway	23.6	25.2	25.5	25.9[b]
Sweden	..	25.5	26.3	27.0
United Kingdom	23.5	24.4	25.5	26.0[b]
Southern Europe				
Albania	..	..	25.7[a]	..
Bosnia and Herzegovina	22.5	22.8	23.6	..
Croatia	22.0	22.8	23.8	..
Greece	24.0	23.3	24.7	25.8
Italy	25.1	25.1	26.9	..
Malta	..	..	..	..
Portugal	24.4	23.6	24.7	25.2
Slovenia	23.4	22.9	23.9	24.6
Spain	..	24.6	26.5	..
The former Yugoslav Republic of Macedonia	22.6	23.0	23.4	..
Federal Republic of Yugoslavia				
Montenegro	23.4	24.4	24.8	..
Serbia	22.2	23.2	23.8	..
Western Europe				
Austria	23.7	24.3	26.1	26.0[b]
Belgium	24.3	24.5	26.3[a]	..
Federal Republic of Germany[c]	24.3	25.2	26.9	27.3[b]
France	23.8	24.9	27.0	..
German Democratic Republic[c]	22.5	22.3	22.9[a]	25.4[b]
Luxembourg	..	..	26.5	..
Netherlands	24.3	25.6	27.6	28.3
Switzerland	25.1	26.4	27.6	28.1

Source: Council of Europe, *Recent Demographic Developments in Europe, 1994* (Strasbourg, Council of Europe Press, 1994).

[a]Referring to 1989.

[b]Referring to 1992.

[c]Through accession of the German Democratic Republic to the Federal Republic of Germany with effect from 3 October 1990, the two German States have united to form one sovereign State. As from the date of unification, the Federal Republic of Germany acts in the United Nations under the designation "Germany". For some statistical data that predate the unification, it has been necessary to refer occasionally to the former States of the Federal Republic of Germany and the German Democratic Republic.

implementation of those preferences that provides the rationale that guides women's reproductive and contraceptive behaviour (Westoff, 1990; Pritchett, 1994). The extent to which women's aspirations concerning the number and timing of children are fulfilled reflects the degree of control women have gained over their reproductive process, which is central to the quality of their lives. The reproductive-health-approach initiative has contributed to redefining the goals of family planning programmes by moving from societal fertility reduction to an explicit concern with assisting individuals in achieving their personal reproductive aspirations (Germain, 1987; Fathalla, 1992; Alan Guttmacher Institute, 1995).

Data on desired family size are routinely collected in fertility and family planning surveys. However, there are numerous problems of validity and reliability, associated with the measurement of fertility preferences in cross-sectional surveys. A common criticism is that in social settings where fertility regulation is a novel practice, responses to hypothetical inquiries about ideal family size might be erratic or, meaningless or reflect ephemeral views. Also, because reproductive targets are continuously revised during the process of childbearing, their predictive power is rather limited. Another drawback is that most available data, in relying exclusively on female reporting of fertility preferences, overlook the role of partners and other family members in reproductive decision-making (Mason and Taj, 1987). Despite these drawbacks, data on fertility preferences provide relevant insights into women's aspirations in reproductive matters and permit an assessment of the extent to which these aspirations are fulfilled (Bongaarts, 1991).

The number of children a woman desires not only depends upon her personal circumstances, but also is largely conditioned by the socio-economic organization, cultural values, family system and gender relations in the society where she lives. Cultural norms typically constrain the range of socially acceptable reproductive choices. Also, a variety of socio-economic factors influence individuals' and couples' desire for children and their ability to implement such aspirations. Those factors include the level of infant and child mortality, female education and employment opportunities for women.

Studies based on data from the World Fertility Survey, conducted in the late 1970s, illustrated the wide variation in childbearing preferences that exists across societies (Lightbourne and MacDonald, 1982; Lightbourne, 1985). Based on a comparative analysis of 38 developing countries (United Nations, 1987), the mean desired family size has been documented to be highest in Africa (6.5), followed by Asia (4.5) and by Latin America and the Caribbean (4.2). DHS conducted since the late 1980s, have updated the information available on women's reproductive preferences for a large number of developing countries (Westoff, 1991; Westoff and Ochoa, 1991; Westoff and Bankole, 1995).

Table 26 presents women's mean desired family size based on DHS data. In some countries, a fairly large proportion of women provided a non-numerical response to the inquiry on ideal family size (Riley, Hermalin and Rosero-Bixby, 1993). Non-numerical responses are customary in contexts where fertility regulation is a novel practice. Ambivalent answers are also frequent in societies with a kinship system where lineage takes priority over conjugal bonds and, consequently, women are not the genuine locus of reproductive decision-making. The most common non-numerical answer was "up to God", suggesting that a considerable number of women feel that the ultimate number of children they will bear is a question of fate rather than a matter of personal choice. The percentage of non-numerical responses was highest in Africa, particularly in Nigeria (61 per cent), the Sudan (47 per cent), Morocco (27 per cent), Mali (25 per cent), Burkina Faso (25 per cent) and Liberia (24 per cent) and also in some Asian countries, such as Pakistan (61 per cent), Jordan (31 per cent) and Yemen (29 per cent). Because women who did not provide a numerical answer tended to desire large families but were excluded from the calculation of the mean desired family size, the estimates presented for those countries in table 26 are likely to be biased downward. The proportion of numerical answers increases significantly with enhanced education, suggesting that female education plays an important role in the legitimation of the notion of reproductive choice (United Nations, 1995c).

Fertility preferences vary considerably across countries, but there is some degree of homogeneity within regions. Desired family size is largest in sub-Saharan Africa, where it usually ranges from 5 to 7. There is considerable debate in the literature as to whether the prevailing preference for large families in the region is attributable to low levels of economic development

TABLE 26. MEAN DESIRED FAMILY SIZE, TOTAL FERTILITY RATE, TOTAL WANTED FERTILITY RATE AND PLANNING STATUS OF RECENT BIRTHS

Region and country	Year of survey	Mean desired family size[b]	Total fertility rate[c]	Total wanted fertility rate[c]	Planning status of recent births[a]	
					Percentage unwanted	Percentage mistimed
Africa						
Botswana	1988	4.7	4.9	3.9	6.2[d]	52.2[d]
Burkina Faso	1993	5.7[e]	6.9	6.0	3.2	21.0
Burundi	1987	5.3	6.9	5.8	5.5[d]	21.6[d]
Cameroon	1991	6.8	5.8	5.2	4.8	16.0
Egypt	1992	2.9[f]	3.9	2.7	25.9	9.0
Ghana	1993	4.4	5.5	4.2	9.0[g]	33.4[h]
Kenya	1993	3.7	5.4	3.4	16.7	34.2
Liberia	1986	6.0[e]	6.7	6.1	25.6[d]	5.6[d]
Madagascar	1992	5.5	6.1	5.2	14.0	9.5
Malawi	1992	5.1	6.7	5.7	14.0	26.6
Mali	1987	6.9[e]	7.1	6.6	3.5[d]	10.7[d]
Morocco	1992	3.4	4.0	2.7	19.3	15.2
Namibia	1992	5.0	5.4	4.8	12.3	21.4
Niger	1992	8.2	7.4[h]	7.4[i]	2.0	11.1
Nigeria	1990	5.8[e]	6.0	5.0	2.3	8.1
Rwanda	1992	4.2	6.2	4.2	25.5	24.1
Senegal	1992/93	5.9	6.0	5.1	4.6	23.4
Sudan	1989/90	5.8[e,f]	4.7	4.2	3.8[d]	22.0[d]
Togo	1988	5.3	6.4	5.0	7.0[d]	32.9[d]
Tunisia	1988	3.5[f]	4.2	2.9	16.7[d]	22.1[d]
Uganda	1988/89	6.5	7.4	6.4	4.6	30.1
United Republic of Tanzania	1991/92	6.1	6.3	5.6	8.1	15.2
Zambia	1992	5.8	6.5	5.4	7.4	26.0
Zimbabwe	1988/89	4.9	5.4	4.3	..	..
Asia						
Bangladesh	1993/94	2.5[f]	3.4	2.1	12.9[h]	20.3[h]
Indonesia	1991	3.1[f]	3.0	2.5	6.5	15.8
Jordan	1990/91	4.4[e,f]	5.6	3.9	20.6	11.4
Mongolia	1994	3.1	3.5	..	12.1	24.2
Pakistan	1990/91	4.1[e,f]	5.4[i]	4.7[i]	13.0	8.4
Philippines	1993	3.2	4.1	2.9	15.9	28.0
Sri Lanka	1987	3.1[f]	2.7	2.2	12.5[d]	25.6[d]
Thailand	1987	2.8[f]	2.2	1.8	14.2[d]	16.2[d]
Turkey	1993	2.4[f]	2.7[i]	1.8[j]	20.4	12.0
Viet Nam	1988	2.6[f]	4.5	2.5	..	..
Yemen	1991/92	5.4[e,f]	7.7	6.0	..	..
Latin America and the Caribbean						
Bolivia	1994	2.5	4.8	2.7	35.3[h]	18.7[h]
Brazil[j]	1986	2.8	3.4	2.3	19.8[d]	24.6[d]
Colombia	1990	2.6	2.9	2.2	18.5	15.1
Dominican Republic	1991	3.1	3.3	2.6	15.6	23.9
Ecuador	1987	3.0	4.2	2.8	16.4[d]	22.5[d]
El Salvador	1985	3.6	4.2	4.0	26.5[d]	19.2[d]
Guatemala[k]	1987	3.8	5.5	4.4	12.3[d]	16.9[d]

TABLE 26 (*continued*)

Region and country	Year of survey	Mean desired family size[b]	Total fertility rate[c]	Total wanted fertility rate[c]	Planning status of recent births[a]	
					Percentage unwanted	Percentage mistimed
Mexico	1987	3.0	4.0	2.8	4.7	13.1
Paraguay	1990	3.9	4.7	3.5	6.5	16.3
Peru	1991/92	2.5	3.5	2.0	33.2	23.3
Trinidad and Tobago	1987	2.9	3.1	2.2	18.8[d]	23.3[d]
United States of America	1988	..	1.93	..	12.3	26.8

Sources: For total fertility rates and total wanted fertility rates: *Demographic and Health Surveys Newsletter* (Baltimore, Maryland), vol. 7, No. 1 (1995); for mean desired family size and planning status of recent births: Demographic and Health Surveys country reports; for the United States of America: National Survey of Family Growth, 1988.

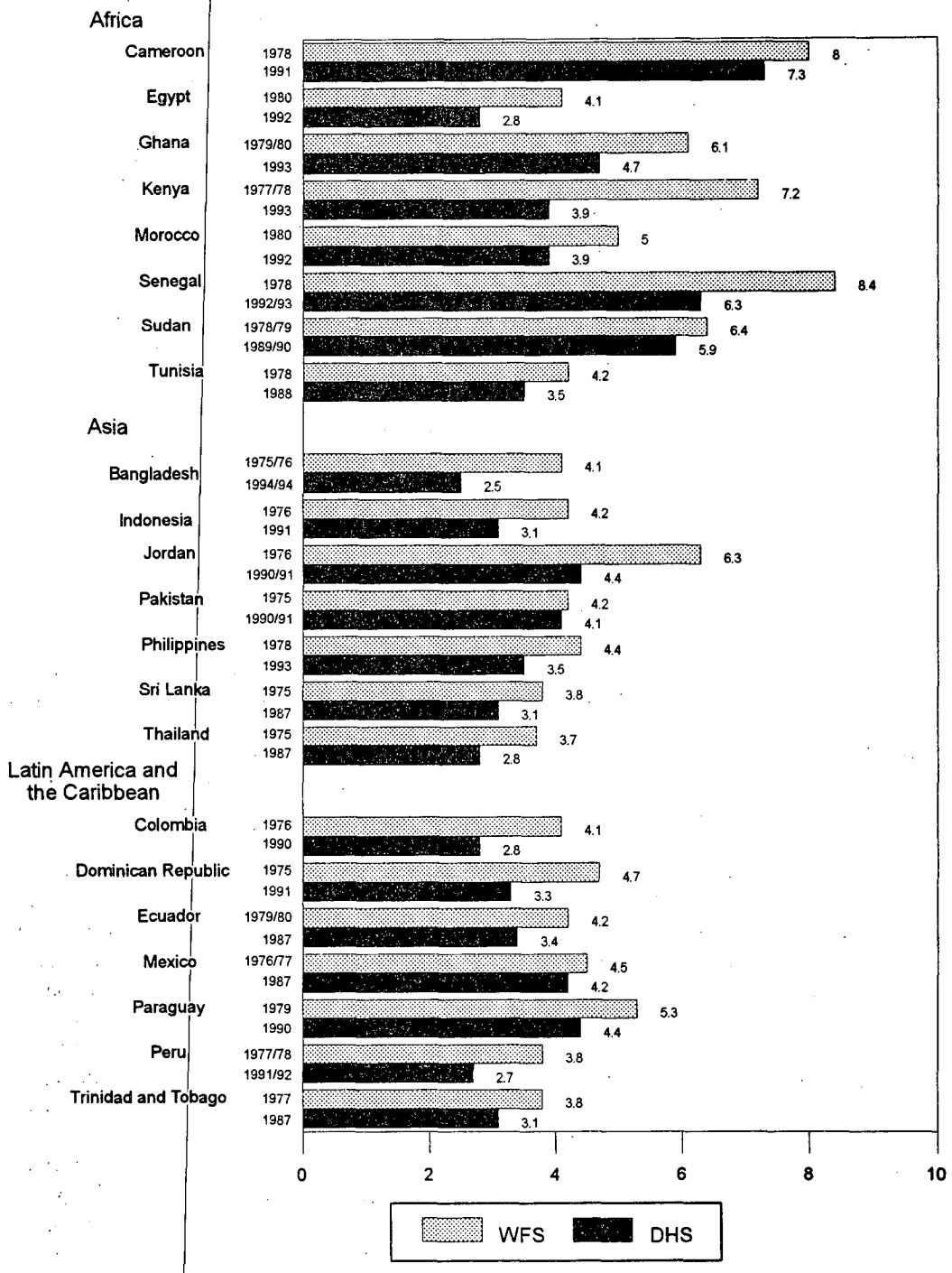
[a]Percentage distribution of births in the five years preceding the survey, unless otherwise noted, including current pregnancies.
[b]Excluding from the calculation of means those women who gave a non-numerical response to the ideal family size question.
[c]Based on three years preceding the survey, unless otherwise noted.
[d]Referring to births within 12 months prior to the survey.
[e]More than 20 per cent of non-numerical responses. The mean desired family size presented is likely to be biased downward.
[f]Among ever-married women.
[g]Referring to births in the three years prior to the survey.
[h]Based on six years preceding the survey.
[i]Based on one year preceding the survey.
[j]Women aged 15-44.
[k]Excluding from the calculation of means those women who gave a non-numerical response response to the ideal family size questions.

(World Bank 1986) or to the mode of social organization (Lesthaeghe, 1989), cultural traits (Caldwell and Caldwell, 1987) or the family system. The institution of child-fostering, for example, distributes the costs of child-rearing throughout an extended kinship network and might hence contribute to maintaining a high demand for children (Isiugo-Abanihe, 1985). The mean ideal number of children is highest in the Niger (8.2), Mali (6.9) and Cameroon (6.8) and lowest in the three Northern African countries surveyed—Egypt (2.9), Morocco (3.4) and Tunisia (3.5)—and also in Kenya (3.7). In Asia, there is considerable variation in women's preferred number of children. The mean desired family size is fewer than 3 in Bangladesh, Thailand, Turkey and Viet Nam; 3 - 4 in Indonesia, Mongolia, the Philippines and Sri Lanka; 4 - 5 in Jordan and Pakistan; and more than 5 in Yemen. In Latin America and the Caribbean, the average family size women consider most desirable is between 2 and 3 in all countries, except the Dominican Republic, El Salvador, Guatemala and Paraguay, where the number lies between 3 and 4.

Figure 7 shows the recent evolution of family size preferences among married women in several countries for which both WFS and DHS data are available. The general trend observed points towards women's increasing preference over time for smaller families. The mean desired number of children among married women declined in all 22 countries surveyed. The most dramatic decline was observed in Kenya, where the mean desired number fell from 7.2 to 3.9 children in the span of 15 years. A large reduction was also observed in Senegal, where women's reported ideal family size fell from 8.4 to 6.3. In the remaining African countries, changes in women's family size preferences were more modest: average desired family size decreased by slightly more than 1 child in Egypt, Ghana and Morocco, and by less than one child in Cameroon, the Sudan and Tunisia. Among the Asian countries studied, women's ideal family size did not experience major changes except in Jordan, where the desired number of children dropped from 6.3 to 4.4, and in Bangladesh, where it dropped from 4.1 to 2.5 in the inter-survey period. In Latin America and the Caribbean, women's preferred number of children declined considerably in all countries except Mexico. A reduction of approximately one third in women's ideal family size was observed in Colombia, the Dominican Republic and Peru.

Women's reproductive preferences in family size are not always successfully implemented. The magnitude of the gap between reproductive ideals and actual child-

Figure 7. Trends in regard to mean desired number of children, World Fertility Survey, 1975-1980, and Demographic and Health Surveys, 1987-1993



Sources: Dara Carr and Ann Way, *Women's Lives and Experiences* (Calverton, Maryland, Macro International, 1994); and various WFS and DHS country reports.

[a]Among currently married women aged 15-49.

bearing can be inferred from the comparison of total fertility rates and wanted fertility rates in table 26. The wanted fertility rate is calculated exactly like the conventional total fertility rate, except that births in excess of the reported ideal family size are excluded from the numerator in the age-specific rates.[2] Accordingly, wanted fertility rates indicate the hypothetical level of childbearing that could be expected if women's reproductive preferences were perfectly realized.

In all countries except the Niger, the wanted fertility rate is below the total fertility rate, suggesting that women's fertility preferences are not implemented with complete success. In Africa, although women tend to desire large families, there are significant discrepancies between the total fertility rate and the total wanted fertility rate: a difference of 1 child or more is observed in 14 of the 24 countries surveyed, and a difference of 2 in Kenya and Rwanda. In most Asian countries, the difference between the number of children desired and actual children borne is relatively moderate, although it exceeds 1 child in Bangladesh, Jordan, the Philippines, Viet Nam and Yemen. In Latin America, reproductive ideals also diverge from actual reproductive performance (Weinberger, Lloyd and Blanc, 1989; Bongaarts and Lightbourne, 1990). The gap between the total fertility rate and the total wanted fertility rate exceeds 1 child in Brazil, Ecuador, Guatemala, Mexico, Paraguay and Peru and 2 children in Bolivia.

The gap between the total fertility rate and the total wanted fertility rate provides an indicator of the average level of "unwanted" childbearing prevailing in a particular society. High levels of unwanted fertility reflect a situation where women have unsatisfactory control over their reproductive lives. In all countries, increasing female education is accompanied by a decline in wanted fertility and by, more importantly, a reduction in unwanted fertility (United Nations, 1995c). Although the discrepancy between actual and wanted fertility rates among educated women is typically small, the gap tends to be remarkably large in the lower educational strata. In most Latin American countries, for example, actual fertility exceeds wanted fertility by 2-3 children among uneducated women (Castro Martín and Juárez, 1995). All evidence suggests that education enables reproductive choice and the successful implementation of women's reproductive preferences.

An unwanted pregnancy not only imposes psychological distress upon the woman concerned, but also has potentially serious consequences for her health (Rosenfield and others, 1989). Many unwanted pregnancies result in abortion performed in unsafe conditions, exposing women to a high risk of mortality and morbidity. Furthermore, the very fact that a pregnancy is unwanted carries an added risk, because women with unwanted pregnancies are less likely than other women to seek prenatal care or to deliver with a trained attendant (Royston and Armstrong, 1989). Given the precarious data on abortion, the prevalence of unwanted pregnancy is difficult to assess. However, table 26 presents an indicator of the prevalence of unplanned childbearing, namely the percentage of births in the five years preceding the survey that women reported as unwanted or mistimed. Because respondents may not recall accurately their wishes at the time of conception and because women understandably are reluctant to report a child already born as unwanted (Bongaarts, 1990), the data presented here are likely to underestimate the true incidence of unplanned childbearing.

In 14 of the 23 countries surveyed in Africa, fewer than 10 per cent of recent births are reported as unwanted. However, the proportion of unwanted births is over 10 per cent in Kenya, Madagascar, Malawi, Morocco, Namibia and Tunisia, and over 20 per cent in Egypt, Liberia and Rwanda. In contrast with the low-to-moderate incidence of unwanted births, the proportion of births that are reported as mistimed is remarkably high in the region: about one fourth in Burkina Faso, Burundi, Malawi, Namibia, Rwanda, Senegal, the Sudan, Tunisia and Zambia; about one third in Ghana, Kenya, Togo and Uganda; and more than one half in Botswana. This high prevalence of mistimed births suggests that, although women in Africa tend to desire large families, they would like to have better control over the timing of reproduction and extend the interval between births.

In Asia, the proportion of recent births that women report as unwanted exceeds 10 per cent in all countries except Indonesia, and reaches 20 per cent in Jordan and Turkey. The proportion of mistimed births is also high in all countries except Pakistan, and it exceeds one fourth of all births in the Philippines and Sri Lanka. In Latin America and the Caribbean, the proportion of recent births women report as unwanted is high in most countries: it reaches approximately one fifth in Brazil, Colombia, El Salvador, and Trinidad and Tobago, and it is more than one third in Bolivia and Peru. The proportion of mistimed births is also generally high, and it reaches nearly one fourth of all recent births in Brazil,

the Dominican Republic, Ecuador, Peru, and Trinidad and Tobago.

In most of the countries studied, the levels of unplanned fertility recorded are quite high, suggesting that women are far from having achieved satisfactory control over their reproductive lives. The reproductive-health-approach initiative has contributed to a broadening of the scope of family planning programmes and to the placing of an increased emphasis on reducing unwanted and unplanned childbearing and associated morbidity (Jain and Bruce, 1993). The concept of "unmet need" has been typically used to imply that services have a further role to play in reducing mistimed and unwanted pregnancies (Westoff and Bankole, 1995). This concept has recently been revised in order to make it more comprehensive and encompassing of women who are not in a marital union and those who are using a contraceptive method that is ineffective, unsafe or unsuitable for them (Dixon-Mueller and Germain, 1992). In order to close the gap between knowledge, reproductive intentions and contraceptive use, services need to be made more responsive to the social and health context of reproductive decision-making (Bongaarts and Bruce, 1995).

In the developed regions, fertility preferences are relatively homogeneous. Table 27 suggests that a family with two children is the dominant ideal, although in some countries, such as Ireland, Japan and the United States, the average ideal family size is slightly above the two-child norm. Many of the developed countries show a pattern opposite to the one that prevails in the developing regions: the preferred number of children is above the actual total fertility rate. However, the number of unintended births is not as low as could be expected given the high prevalence of contraceptive use. In the United States, for example, 12 per cent of all births were unwanted and 27 per cent were mistimed, according to the 1988 National Survey of Family Growth (United States National Center for Health Statistics, 1988).

TABLE 27. MEAN IDEAL NUMBER OF CHILDREN, DEVELOPED COUNTRIES

Country	*Year*	*Ideal number of children*
Belgium	1989	2.0
Denmark	1989	2.1
Federal Republic of Germany[a]	1989	2.0
France	1994	2.3
Greece	1989	2.4
Japan	1992	2.6
Spain	1989	1.9
Ireland	1989	2.8
Italy	1989	2.2
Luxembourg	1989	2.0
Netherlands	1989	2.2
Portugal	1989	2.0
Russian Federation	1992	2.0
United Kingdom of Great Britain and Northern Ireland	1989	2.1
United States of America	1988	2.6

Sources: Commission of the European Communities, *Euro-barometer 32*, 1991; Alan Guttmacher Institute, *Hopes and Realities: Closing the Gap Between Women's Aspirations and Their Reproductive Experiences* (New York, Alan Guttmacher Institute, 1995); L. E. Darsky and G. A. Bondarskaya, "Fertility in Russia, 1985-1994: situational crisis or transition continuation?", paper presented at the Third European Population Conference, Milan, 4-8 September 1995.

[a]Through accession of the German Democratic Republic to the Federal Republic of Germany with effect from 3 October 1990, the two German States have united to form one sovereign State. As from the date of unification, the Federal Republic of Germany acts in the United Nations under the designation "Germany". For some statistical data that predate the unification, it has been necessary to refer occasionally to the former States of the Federal Republic of Germany and the German Democratic Republic.

F. INFERTILITY: PREVALENCE AND UNDERLYING CAUSES

Broadly defined, the term "family planning" refers to the ability not only to avoid childbearing when it is not wanted but also to ensure childbearing when it is wanted. Since reproductive choice is seriously hampered in the presence of infertility, its prevention, diagnosis and treatment are increasingly recognized as a key component of reproductive health (Fathalla, 1991).

Infertility affects both men and women of reproductive age. The inability to have children can have profound negative implications for the individual. In addition to the psychological frustration derived from the inability to fulfil their reproductive preferences, infertile couples are often exposed to a variety of family and social pressures. In societies where a woman's identity is closely linked to her maternal role, infertility can lead to social stigmatization and may adversely affect gender relations, kinship ties, inheritance, marriage and divorce patterns (Inhorn, 1994).

According to the World Health Organization (WHO) estimates, between 8 and 12 per cent of all couples

(representing from 50 million to 80 million people affected worldwide) experience some form of infertility during their reproductive lives (World Health Organization, 1991). In a small proportion of couples (under 5 per cent) the underlying causes of infertility are attributable to anatomical, genetic, endocrinological or immunological factors. However, in majority of the cases, problems of infertility in women arise from untreated infection and are frequently linked to pelvic inflammatory disease (PID) (Sciarra, 1991). In a standardized clinical investigation of infertility, involving more than 10,000 infertile couples in 25 countries, infection-related tubal factors accounted for female infertility in 36 per cent of the cases in developed countries, 85 per cent in Africa, 39 per cent in Asia and 44 per cent in Latin America (World Health Organization, 1987). An estimated 60 per cent of women with PID become sterile if they are not treated with antibiotics (Sherris and Fox, 1983). Sexually transmitted diseases, such as gonorrhoea or chlamydia, are the most common source of PID. Because sexually transmitted diseases and their sequelae have been the major preventable cause of infertility, they have been given special emphasis in recent studies (Mtimavalye and Belsey, 1987; Farley and Besley, 1988; Elias, 1991). The risk of PID is also fairly high as a consequence of post-partum and post-abortion complications (World Health Organization, 1987). Infection can result from obstetric or abortion practices that take place under unhygienic conditions involving untrained personnel or when a woman with complications is unable to reach a hospital. Other factors that increase the risk of infertility are female genital mutilation (Toubia, 1993; Aziz, 1980), very early sexual initiation (Sundby and Olsen, 1992) and severe or chronic malnutrition.

Much less is known about male infertility, partly because men are less likely to seek full examination or treatment. Male infertility results primarily from low concentrations of sperm in semen (low sperm count). In developing countries, male infertility is often caused by untreated genital infections, many of them sexually transmitted. The same sexually transmitted diseases that cause female infertility, especially gonorrhea, chlamydial infection and, possibly, mycoplasmas, also affect males (Sherris and Fox, 1983).

There are two types of infertility: "primary infertility", (the inability to conceive or bear any children at all); and "secondary infertility" (the inability to conceive or bear a child subsequent to an earlier birth). Definitions of infertility are not entirely uniform among clinicians, epidemiologists and demographers. Medical studies typically focus on the inability to conceive, whereas demographic studies focus on the inability to bear children, which may arise from the inability either to conceive or to carry a pregnancy to full term. The length of the period of exposure also varies across studies: clinical research usually relies on a one-year period; the epidemiological definition by WHO recommends a two-year period (World Health Organization, 1975); and most demographic indicators use a five-year period. Regardless of the definition used, the measurement of exposure to conception presents numerous difficulties. A comprehensive measure of exposure would require data on marital status, abstinence, coital frequency, contraceptive use and partner's presence or absence for the entire period under consideration (Arnold and Blanc, 1990).

The information currently available on the prevalence of infertility and its changes over time is limited. A comprehensive database on the available data on primary and secondary infertility is maintained by the Division of Family Health of WHO (World Health Organization, 1991). The main sources of data are clinical studies, which cover a non-representative subset of couples that request care from health services; epidemiological studies, which are relatively scarce; and demographic surveys, which rely on the accuracy of respondents' answers. Different data sources have different inherent limitations and serve different purposes. Prevalence studies typically require demographic and epidemiological data. Those data can also offer some indications of the underlying causes of infertility, for example, they may reveal whether high levels of infertility prevail in areas where a high incidence of sexually transmitted diseases has been documented. However, detailed information on aetiological factors requires specific clinical studies.

Estimates of primary infertility are usually derived from demographic data on childlessness. Although data on the number of children ever born, by women's age, are easily available, the existence of voluntary childlessness may confound standard measures of infertility. Secondary infertility is much more difficult to assess, as it may occur at any time after a woman's first pregnancy. Inferences on the level of secondary infertility need to take into account women's contraceptive behaviour, exposure to pregnancy and post-partum abstinence and breastfeeding practices. An additional difficulty consists

in differentiating subfecundity caused by the natural ageing process (Rahman and Menken, 1993) from pathological infertility, induced by disease and malfunctions of the reproductive system.

A couple's inability to have a live birth may be due to impairment either of the reproductive system of the woman, or of that of her partner or to impairment of both their reproductive systems. In general, female factors are thought to cause sterility in 50-70 per cent of all sterile couples (Sherris and Fox, 1983). However, the contribution of female factors might be overestimated because of the tendency of research to focus on women rather than men. Demographic data do not allow the distinction between male and female infecundity. Since surveys typically collect information on women's reproductive histories, most infertility measures are woman-based, even if results refer to the fecundity of couples.

The prevalence, underlying causes and contributing factors of infertility vary across countries and within countries. Some naturally occurring level of primary infertility is expected in all populations and various research studies have shown it to be about 3 per cent in the absence of pathological infertility (Bongaarts and Potter, 1983).

In developed countries, a low level of pathological infertility coexists with an increasing trend towards voluntary childlessness, associated with the general tendency to postpone marriage and family formation (Prioux, 1991). Intentional childlessness is often the result of a gradual change from temporary to permanent childlessness rather than the outcome of a deliberate decision to live without children.

Among developing countries, past studies showed relative low levels of pathological infertility in Asia and Latin America (Vaessen, 1984) and an unusually high incidence of impaired fertility in Africa, particularly in Central Africa (Adadevoh, 1974; Caldwell and Caldwell, 1983; Bongaarts, Frank and Lesthaeghe, 1984; Evina, 1991). According to a study on the prevalence of infertility in sub-Saharan Africa (Frank, 1983), the proportion of women that remained childless at the end of their childbearing span was above 10 per cent in 10 of the 17 countries surveyed. Among Central African countries, rates of primary infertility were 32 per cent in Gabon, 20 per cent in the Congo and the Democratic Republic of the Congo (formerly Zaire), and 17 per cent in Cameroon and the Central African Republic. Sexually transmitted diseases have been identified as the single major cause of primary and secondary sterility in this region, followed by infections from childbirth and abortion (Cates, Farley and Rowe, 1985; World Health Organization, 1988a).

Table 28 presents, based on data collected in recent DHS, the proportion of women aged 40-44 that have not had a live birth, as an estimate of lifetime infertility, for a large number of countries.[3] A problem with this indicator is that, because it is based on the reproductive histories of cohorts at the end of their childbearing span, it may not reflect current levels of infertility. Also, because most sample surveys include a relatively small number of women over age 40, sampling errors may result in imprecise estimates. However, similar findings are obtained when an alternative indicator of primary infertility—the proportion childless among women aged 25 years or over who have been married for at least five years—is used (Arnold and Blanc, 1990).

According to table 28, levels of primary infertility, as inferred from the prevalence of childlessness among women at the end of their reproductive span, are relatively low. In most countries, the proportion of women aged 40-44 who have not had a live birth is between 2 and 4 per cent. Proportions of childless women higher than 4 per cent are observed in the Dominican Republic (4.1 per cent), the Sudan (4.1 per cent), Indonesia (4.3 per cent), the Niger (4.3 per cent), Nigeria (4.6 per cent), Madagascar (4.7 per cent), Uganda (5.1 per cent), Cameroon (5.7 per cent), and Trinidad and Tobago (6.4 per cent).[4]

In general, the countries surveyed in Africa show levels of primary infertility comparable with those in other world regions (Arnold and Blanc, 1990). In a comparative study of infertility patterns in Africa, Ulla Larsen (1994) also found low levels of primary infertility in 17 countries in the region. These findings contradict earlier studies, although it is possible that pockets of high primary infertility still exist in countries for which recent data are not available. DHS did not cover most Central African countries where infertility has

TABLE 28. PERCENTAGE OF EVER-MARRIED WOMEN AGED 40-44 WHO HAVE NOT HAD A LIVE BIRTH, WORLD FERTILITY SURVEY, 1975-1980, AND DEMOGRAPHIC AND HEALTH SURVEYS, 1986-1994

Region and country	World Fertility Survey		Demographic and Health Surveys	
	Year	Percentage childless	Year	Percentage childless
Africa				
Botswana	..	..	1988	2.7
Burkina Faso	..	..	1993	1.7
Burundi	..	..	1987	0.9
Cameroon	1978	10.8	1991	5.7
Egypt	1980	4.1	1992	3.5
Ghana	1979/80	2.6	1993	2.6
Kenya	1977/78	3.5	1993	2.6
Liberia	..	..	1986	3.5
Madagascar	..	..	1992	4.7
Malawi	..	..	1992	1.8
Mali	..	..	1987	3.5
Morocco	1979/80	7.7	1992	2.5
Namibia	..	..	1992	2.6
Niger	..	..	1992	4.3
Nigeria	..	..	1990	4.6
Rwanda	..	..	1992	0.9
Senegal	1978	3.5	1992/93	2.7
Sudan	1978/79	6.5	1989/90	4.1
Togo	..	..	1988	0.4
Tunisia	1978	3.6	1988	3.9
Uganda	..	..	1988/89	5.1
United Republic of Tanzania	..	..	1991/92	2.5
Zambia	..	..	1992	1.4
Zimbabwe	..	..	1988/89	2.5
Asia				
Bangladesh	1975/76	2.7	1993/94	1.8
Indonesia	1976	4.8	1991	4.3
Jordan	1976	2.4	1990/91	1.2
Mongolia	..	..	1994	0.7
Pakistan	1975	4.2	1990/91	3.2
Philippines	1978	2.3	1993	3.0
Sri Lanka	1975	4.2	1987	2.8
Thailand	1987	2.5	1987	2.6
Turkey	..	..	1993	2.7
Viet Nam	..	..	1988	0.9
Yemen	1979	2.3	1991/92	2.2
Latin America and the Caribbean				
Bolivia	..	..	1994	1.7
Brazil	..	..	1986	3.9
Colombia	1976	3.2	1990	3.4
Dominican Republic	1975	6.0	1991	4.1
Ecuador	1979	2.0	1987	1.3
El Salvador	..	..	1985	1.9
Guatemala	..	..	1987	1.0
Mexico	1976	3.1	1987	2.4
Paraguay	1979	3.2	1990	3.8
Peru	1977/78	1.8	1991/92	1.6
Trinidad and Tobago	1977	5.8	1987	6.4

Sources: World Fertility Survey and Demographic Health Surveys country reports.

been reported to be unusually high. However, the only country surveyed within this subregion—Cameroon—shows a moderate level of primary infertility (5.7 per cent of women aged 40-44), according to the 1991 DHS.

The extent of disease-induced sterility in Africa would be disguised if the analysis were confined to estimates of the prevalence of primary infertility. Although the proportion of childless women among ever-married women aged 40-44 does not exceed 6 per cent, Larsen (1994) found high levels of infertility over age 25 when considering the percentage of all women regularly exposed to pregnancy who had not had any children for a period of five years, irrespective of the number of children that they had already. According to that study, the proportion of women aged 30-34 subsequently infertile ranged between 33 per cent in Cameroon (based on the 1991 DHS data) and 11 per cent in Burundi (based on the 1987 DHS data). The proportion subsequently infertile was above 20 per cent in Benin, Botswana, Côte d'Ivoire, Ghana, Liberia, Mali, Mauritania, Nigeria, Senegal, the Sudan, Uganda and Zimbabwe. These measures of subsequent infertility reveal a high prevalence of secondary infertility in Africa.

The scarcity of time-trend data precludes the assessment of worldwide trends in the prevalence of infertility. The recent evolution of infertility patterns can be traced only for a few countries where several surveys have been conducted. With regard to primary infertility, table 28 compares WFS and DHS data for 23 countries on the proportion of ever-married women aged 40-44 who never had a live birth. According to these data, the level of childlessness has declined over time in most countries, particularly in those where relatively high levels of childlessness were recorded in WFS, such as Cameroon, Morocco, the Sudan and the Dominican Republic. The levels of primary infertility may have declined recently because of improvements in women's health and nutrition and an expansion in the use of antibiotics for the treatment of sexually transmitted diseases.

Larsen (1994) also concludes that the prevalence of primary sterility has been declining in Africa, but warns that the observed declines in childlessness during recent decades may be poor indicators of the secular trend in infertility when measured over the entire reproductive cycle. According to the age-specific rates of sterility presented in the Larsen study, evidence of decline over time was found in Cameroon, Nigeria and the Sudan, but not in Ghana, Kenya and Senegal.

Despite the information available from demographic sources, more reliable estimates of the incidence and prevalence of infertility are needed for developing adequate preventive strategies. Also, in order to monitor changes over time in the prevalence and pattern of infertility, repeated studies of the same population are crucial. The variations in infertility within countries, among regions and particular groups also need to be assessed. Surveys that include women's medical histories of sexually transmitted diseases experience and treatment may prove useful in providing a better understanding of the aetiology of infertility. Information on female genital mutilation, sexual practices, place of delivery and type of attendance at birth is also relevant with respect to shedding light on behaviour that promotes or prevents dissemination of infertility at young ages.

In the past decade, dramatic advances have been made, in respect of the investigation and treatment of infertility, in techniques of medically assisted conception, such as *in vitro* fertilization (World Health Organization, 1992; Arisi, Villotti and Szalay, 1995). Although assisted reproductive technology has helped some couples realize their reproductive preferences, such techniques are costly and require good health facilities. Therefore, it is questionable whether they can have an impact on infertility as a public-health problem in many developing countries, where health-care resources are limited. Although methods of assisted reproduction should be made more widely available in developing countries, public health programmes should focus on prevention of infertility, which is more cost-effective (World Health Organization, 1987). Simple strategies to prevent, detect and treat most infections leading to infertility exist and can be implemented through the primary health-care system (World Health Organization, 1984). For example, proper diagnosis and treatment of sexually transmitted diseases, hygienic practices at delivery and maternal health care can significantly reduce the incidence of secondary infertility.

G. Reproductive Risk Factors and Maternal Health

Medical, epidemiological and demographic studies have identified a number of behavioural and biological factors associated with the pattern of childbearing that may adversely affect the survival and well-being of mothers and their children. Apart from such elements as a woman's prior nutritional and health status, the most easily identifiable risk factors are linked to mother's age, parity and birth intervals. Pregnancies occurring too early or too late in the maternal life course, high-parity pregnancies and short-spaced pregnancies are considered to pose higher-than-normal risks to women's health (National Research Council, Committee on Population, 1989). The influence of the number, timing and spacing of births on maternal health has led to a renewed emphasis on the health rationale for family planning, which was highlighted by the Nairobi Conference on Better Health for Women and Children through Family Planning in 1987.

Reproductive risk factors are closely associated with the patterns of childbearing and the level of fertility prevailing in a society. In many high-fertility societies, for example, childbearing starts at an early age and continues late into the reproductive span; women's total number of pregnancies is large and births may be closely spaced if traditional practices, such as prolonged breastfeeding or post-partum abstinence, are abandoned and not offset by increased contraceptive use. The combination of these reproductive patterns entails compounded risks for the health of women and their children (Zimicki, 1989).

The high risks associated with childbearing in developing countries are reflected in high rates of maternal mortality (Boerma, 1987; Kwast, 1989). Although there are approximately 27 maternal deaths per 100,000 live births in the more developed regions, women in the less developed regions face a risk 18 times greater of dying from pregnancy-related causes (480 deaths per 100,000 live births). Within the developing regions, reproductive risks are highest in Africa (870 deaths per 100,000 live births) and lowest in Latin American and the Caribbean (190 deaths per 100,000 live births) (World Health Organization, 1996).

Research on the effect of bio-demographic characteristics, such as mother's age, birth spacing and birth order, on child survival is extensive. In particular, the link between the timing of births in the maternal life course and the subsequent survival chances of these births has been well established and extensively documented for a large number of developing countries using data from WFS (Hobcraft, McDonald and Rutstein, 1985; Palloni and Millman, 1986) and DHS (United Nations, 1994).

Evidence of the association between reproductive patterns and maternal health is much more limited. It is generally assumed that a woman's chances of surviving pregnancy and labour, of being free from obstetrical and gynaecological complications, and of enjoying good health are reduced by the same factors affecting children's health. However, existing research has mainly focused on infant and child survival and very few studies have been specifically designed to evaluate the impact of reproductive risk factors on the mother's health.

There are a number of reasons that explain the current shortage of studies investigating the hypothesized associations between reproductive patterns and maternal health. First, maternal mortality is a relatively rare event compared with child mortality, and reliable estimates therefore require a large number of observations, particularly when contrasting age and parity groups. Secondly, vital registration in most developing countries is seriously incomplete: a large number of deaths are not registered and many pregnancy-related deaths are often attributed to other causes. In addition, information on maternal mortality is difficult to obtain through standard demographic surveys, which typically involve interviews with living mothers on their reproductive histories and the survival status of their children. Only some indirect methods, such as the sisterhood method, which relies on information provided by adults in the household on whether they had a sister that died shortly before or after childbirth, can provide approximate estimates of maternal mortality (Rutenberg and Sullivan, 1991). Information on maternal morbidity is even more difficult to gather from demographic sources, since illness associated with pregnancy tends to be poorly reported. Because of the constraints associated with standard sources of demographic data, evidence on the association between reproductive patterns and maternal health relies mainly on general population-based studies, hospital-population studies and hospital case series, which can provide valuable insights but are limited in terms of representativeness.

In addition to data availability constraints, studies on reproductive patterns and maternal health are often more

limited methodologically than those available on child health. That few of the existing studies use multivariate statistical techniques to control for potentially confounding variables makes it difficult to conclude that specific high-risk characteristics are causally related to maternal mortality. For example, since poor women have both more births and less access to medical care, the effect of high parity on maternal mortality could easily be overestimated.

Maternal age

It has been documented that mother's age affects pregnancy outcomes (Hansen, 1986; Casterline, 1989), children's subsequent survival (United Nations, 1994), and the likelihood of complications during pregnancy and childbirth. Reproductive morbidity and mortality are more common among women who become pregnant at the very beginning and at the end of their reproductive span.

Pregnancies that occur before a woman has attained full physical maturity are likely to entail greater risks of complications (World Health Organization, 1989). Pregnancy-related hypertension (World Health Organization, 1988b) and obstructed labour due to the smallness of the pelvis (Aitken and Walls, 1986) have been found to be the most common causes of morbidity and mortality among young women. However, the observed risks may partly reflect disadvantaged socio-economic status and limited access to health care. Very young women are less likely to receive early and adequate prenatal care, especially if the pregnancy was not planned. Since births to younger women are often primiparous ones, and these are known to pose a higher risk (Zimicki, 1989), the effects of age and of parity may be also confounded.

Available studies provide conflicting evidence on whether pregnancies at maternal ages under 20 are inherently riskier. Some studies found elevated risks of maternal mortality for younger and primigravid women (Chi, Agoestina and Harbin, 1981; Walker and others, 1985), while others detected no increased risk (Koenig and others, 1988). A significant problem with these studies is that all births to women under age 20 are combined, despite existing evidence that risks are greater for women under age 17, and particularly for those under age 15 (Harrison and Rossiter, 1985).

Confounding effects of age and parity may be also present in studies investigating the relationship between maternal health and advanced maternal age. Some studies have documented that pregnancy and labour complications increase with maternal age (Breart, Blondel and Maillard, 1987; Berkowitz and others, 1990) and that older women, especially those over age 35, generally experience a greater risk of cervical infection, uterine prolapse and anaemia (Gil, Ochoa and Omran, 1981).

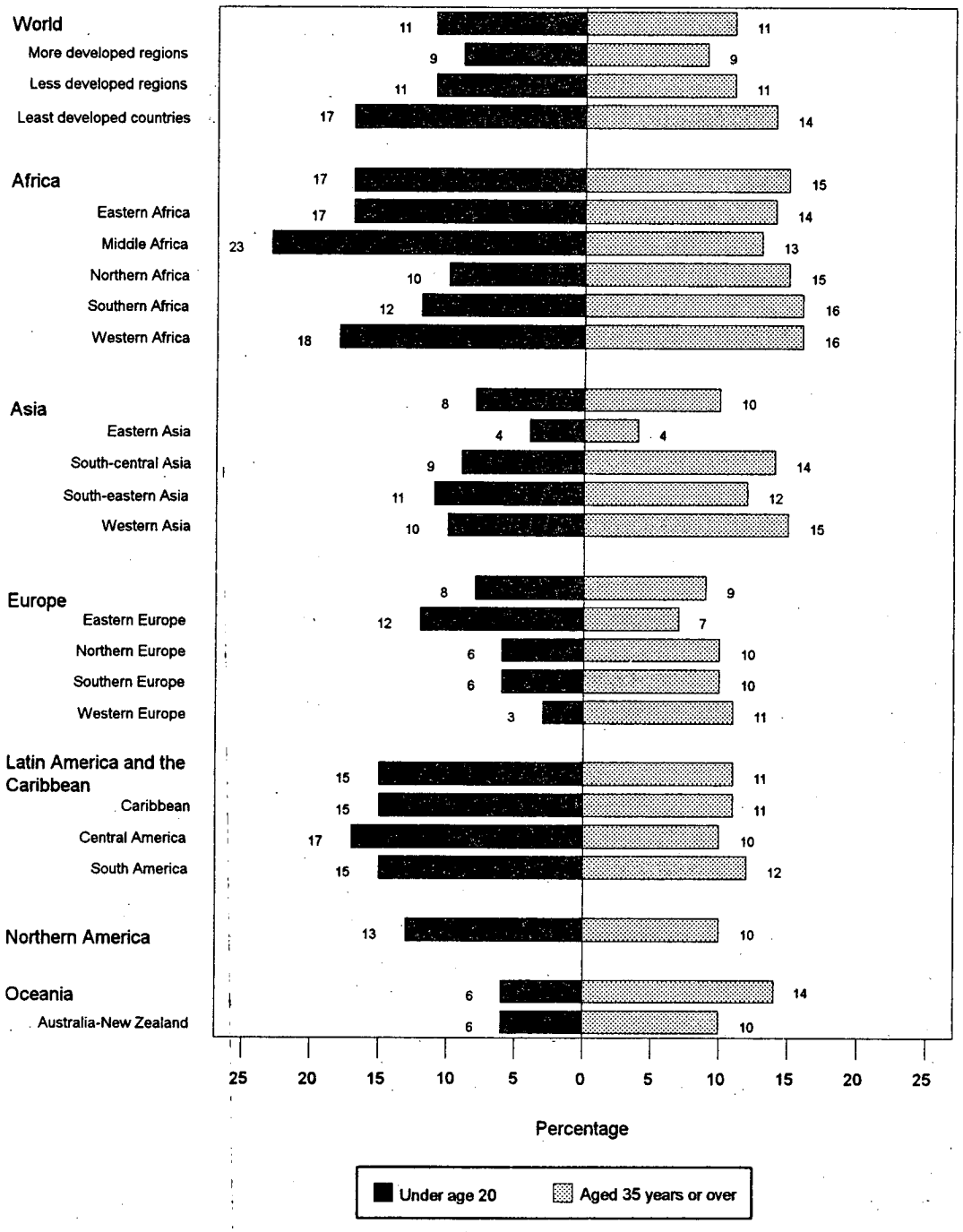
The percentage of births to women under age 20 and over age 34 for major areas and regions of the world, based on the *1994 Revision* of the United Nations estimates and projections (United Nations, 1995d), is presented in figure 8. The proportion of births to adolescent women is 9 per cent in the developed countries, 11 per cent in the developing countries and 17 per cent in the least developed countries, reflecting in the last-mentioned group a pattern of early childbearing. Within the developing regions, births to young women are more prevalent in Africa (particularly in Middle Africa), and Latin America and the Caribbean, and less prevalent in Asia. Within the developed regions, the proportion of births to young women is generally low, with the exception of Eastern Europe (12 per cent) and Northern America (13 per cent).

The prevalence of births to women over age 34 follows a pattern by major areas similar to that observed for births to young women: the proportion is lowest in developed countries (9 per cent), higher in developing countries (11 per cent) and highest in the least developed countries (14 per cent). Yet, the range of differentials among regions is narrower. Africa has the highest prevalence of late childbearing (15 per cent), but the proportions of births to women aged 35 years or over in Asia (10 per cent) and Latin America and the Caribbean (11 per cent) are similar to those in Europe (9 per cent) and Northern America (10 per cent).

Parity

Population-based studies and results from hospital studies indicate that complications from pregnancy and childbirth are more frequent in both first births and high-parity births (Walker and others, 1985; Koenig and others, 1988). These studies indicate a J- or U-shaped risk of maternal mortality with parity. However, since

Figure 8. Percentage of births to women under age 20 and aged 35 years or over, major areas and regions, 1990-1995



Source: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

high-order births typically occur late in the maternal life cycle, the risks associated with high parity and advanced maternal age are usually confounded. The relationship becomes less clear-cut once birth interval duration and age are taken into account.

Some of the obstetric complications related to high parity include placenta previa, malpresentation of the foetus, post-partum haemorrhage, anaemia, toxaemia and rupture of the uterus. Some evidence also links high parity with other maternal health problems, such as prolapse, cancer of the cervix and diabetes (Omran and Standley, 1976).

Birth-spacing

The association between birth-spacing and child survival is well established and extensively documented (Boerma and Bicego, 1992; Hobcraft, 1992; United Nations, 1994). When children are born in close succession, the risk of illness and death to the newborn increases significantly. Long-standing concerns with child-spacing, often achieved through extended periods of abstinence from sexual relations after birth, are reflected in the traditional practices of many societies.

The relationship between birth-spacing and maternal health has been less systematically investigated. Although the establishing of long birth intervals has frequently been advocated as an important strategy to improve maternal survival (Omran and others, 1992), there is yet insufficient evidence on the association between birth interval length and maternal mortality.

Since pregnancy and lactation are known to place extra stress on women's nutritional reserves, some studies have hypothesized that short birth intervals, especially if accompanied by intensive breastfeeding, may lead to what is called the maternal depletion syndrome, in which a woman is prevented from rebuilding depleted nutritional stores before the next pregnancy begins (Omran and Standley, 1981). There is some evidence on the association between pregnancy-spacing and nutritional depletion (Merchant and Martorell, 1988; Miller and Huss-Ashmore, 1989), but the negative effect of short birth intervals on maternal health appears to be largely contingent on women's prior nutritional and health status (Winkvist, Rasmussen and Habicht, 1992).

Whether short-spaced pregnancies have a significant detrimental effect on healthy women of relatively low parity has not been documented (Winikoff, 1983). However, a sequence of closely spaced pregnancies is likely to worsen the nutritional status of women who are already malnourished. In this case, both prolonging interpregnancy intervals and improving the levels of dietary intake would enhance women's health status (Miller, Rodríguez and Pebley, 1993).

Table 29 presents DHS data for 44 countries with regard to the incidence of higher-risk births, namely, the percentage of births in the five years preceding the survey occurring to women under age 18, to women aged 35 years or over, and less than 24 months from the date of the previous birth. The table does not include high-order births because there is no conclusive evidence on the degree of risk associated with parity independent of age. It should be noted that births may fall within more than one risk category.

According to table 29, short birth interval constitutes the most common risk factor. The proportion of recent births spaced less than two years apart from the previous birth reaches at least one fourth in Brazil, Ecuador, Egypt, Jordan, Mexico, Mongolia, Pakistan, Paraguay, the Philippines, Trinidad and Tobago, Tunisia and Yemen. Births to women over age 34 range between 10 and 20 per cent of all recent births in most countries, and the proportion of births to women younger than age 18 is usually below 10 per cent, except in Bangladesh, Cameroon, Liberia, and Uganda.

The health of women and children is expected to improve by reducing pregnancies occurring too early, too often or too late in life, or too closely (National Research Council, Committee on Population, 1989). Because the widespread adoption of contraception allows a reduction of the absolute number of pregnancies and a shifting of the timing of pregnancy from high-risk to lower-risk ages and from shorter to longer birth intervals, the provision of family planning services has been highlighted as a key strategy for reducing maternal mortality and morbidity (Rosenfield and Maine, 1985). Trussell and Pebley (1984) have generated quantitative estimates of the potential reduction of mortality that could be achieved under hypothetical changes in the distributions of maternal age at birth, birth order and birth-spacing patterns. Their results show that the maternal mortality

TABLE 29. PROPORTION OF BIRTHS IN THE FIVE YEARS PRECEDING THE SURVEY THAT FALL WITHIN AT LEAST ONE RISK CATEGORY

Region and country	*Year*	*Mother's age <18*	*Mother's age >34*	*Birth interval <24 months*
Africa				
Botswana	1988	8.4	12.6	10.4
Burkina Faso	1993	6.0	15.8	12.0
Burundi	1987	1.0	17.2	18.2
Cameroon	1991	11.6	11.5	18.5
Egypt	1992	4.1	12.7	25.0
Ghana	1993	4.8	16.1	12.3
Kenya	1993	6.5	13.0	20.0
Liberia	1986	10.7	13.0	23.3
Madagascar	1992	8.5	14.4	24.3
Malawi	1992	8.1	18.2	17.3
Mali	1987	9.0	16.0	21.7
Morocco	1992	2.6	19.9	20.6
Namibia	1992	5.7	18.0	15.9
Niger	1992	9.9	12.0	23.0
Nigeria	1990	8.4	13.9	22.7
Rwanda	1992	2.2	20.2	17.3
Senegal	1992/93	7.8	16.3	16.4
Sudan	1989/90	5.6	13.6	23.6
Togo	1988	6.6	16.3	13.2
Tunisia	1988	0.9	14.1	29.2
Uganda	1988/89	10.0	12.3	23.4
United Republic of Tanzania	1991/92	6.8	14.6	13.7
Zambia	1992	9.5	12.7	14.4
Zimbabwe	1988/89	5.9	14.3	14.7
Asia				
Bangladesh	1993/94	15.2	6.2	15.2
Indonesia	1991	5.7	10.2	14.2
Jordan	1990/91	2.5	16.3	41.9
Mongolia	1994	8.5[a]	8.8	26.4
Pakistan	1990/91	4.4	12.8	27.4
Philippines	1993	2.5	16.5	28.2
Sri Lanka	1987	2.2	12.3	19.8
Thailand	1987	4.8	10.2	15.2
Turkey	1993	4.9	7.4	19.7
Yemen	1991/92	4.5	20.3	36.6
Latin America and the Caribbean				
Bolivia	1994	5.1	15.7	23.5
Brazil	1986	6.0	11.0	28.1
Colombia	1990	5.9	9.3	20.3
Dominican Republic	1991	8.1	6.4	24.8
Ecuador	1987	5.8	12.4	26.1
Guatemala	1987	6.9	11.8	24.8
Mexico	1987	7.2	11.3	25.7
Paraguay	1990	5.3	16.6	29.1
Peru	1991/92	5.0	14.3	21.4
Trinidad and Tobago	1987	4.9	8.3	27.0

Sources: Tabulations provided by the Demographic and Health Surveys, Macro International, Inc., and various surveys country reports.

[a]Mother under age 20.

ratio could be reduced by about 11 per cent if childbearing was limited to ages 20-39, and by about 4 per cent if fourth- and higher-order births were eliminated. Hence, although changes in the age and parity distributions of fertility have the potential for reducing maternal mortality, the reduction that can be achieved exclusively through the transformation of reproductive patterns is limited. Winikoff and Sullivan (1987) have emphasized these limits, noting that although elevated risks exist at the extremes of the reproductive span and in very high parity groups, the majority of women that die as a consequence of pregnancy, abortion or childbirth may not fall within high-risk categories according to bio-demographic criteria. According to those authors, socio-economic conditions and health care are more important determinants of the health and survival of pregnant women than the demographic characteristics of births.

Bio-demographic risk factors are often associated with other risk factors, including poverty, low educational attainment and inadequate access to health services, each of which has in itself an adverse effect on the health of the mother and the child. Since failure to control for these other risk factors may distort inferences about the impact of reproductive patterns on women's health, it is crucial to undertake multivariate statistical analyses that clarify the mediating role of socio-economic conditions and access to health services and examine how they may interact with, exacerbate or totally eliminate the adverse effects of biological risk factors (Rooney, 1992; Kuate Defo, 1993).

The risks associated with pregnancy and childbearing can be substantially reduced through adequate obstetric and maternal care (Govindasamy and others, 1993). Hence, the availability and quality of health-care services and access to them largely condition the impact of physiological risk factors on women's health. Research findings and historical lessons from developed countries demonstrate the preventable nature of most maternal deaths associated with complications of pregnancy and childbirth. In spite of the importance of maternity care, poor access to and low utilization of health services continue to be important determinants of maternal mortality and morbidity throughout the world.

Coverage of maternity services varies greatly between countries. Data on the percentage of women receiving prenatal care and professional assistance at delivery in 46 developing and 3 developed countries are presented in figure 9. Prenatal care facilitates preventive and educational interventions and allows health-care providers to identify and monitor women who face higher risks, whether because of bio-demographic, medical or social factors. In almost all countries examined, coverage is higher for prenatal care than for delivery care. The proportion of births for which women received prenatal care ranged from over 90 per cent in Botswana, the Dominican Republic, Kenya, Malawi, Rwanda, Sri Lanka, Trinidad and Tobago, the United Republic of Tanzania, Zambia and Zimbabwe, and the developed countries, to less than 35 per cent in Bangladesh, Guatemala, Mali, Morocco, the Niger, Pakistan, and Yemen. The assistance of a trained provider during labour and delivery is highly important because this is the period when complications are most likely to be fatal. As shown in figure 9, the coverage for professional assistance at delivery ranged from over 80 per cent in China, Colombia, the Dominican Republic, El Salvador, Jordan, Sri Lanka, Trinidad and Tobago and the developed countries, to less than 30 per cent in Bangladesh, Burundi, Guatemala, Mali, the Niger, Pakistan, Rwanda and Yemen. These data show that in many countries there exists a considerable potential for reducing the risks associated with pregnancy and childbearing by improving the health-care coverage of women.

NOTES

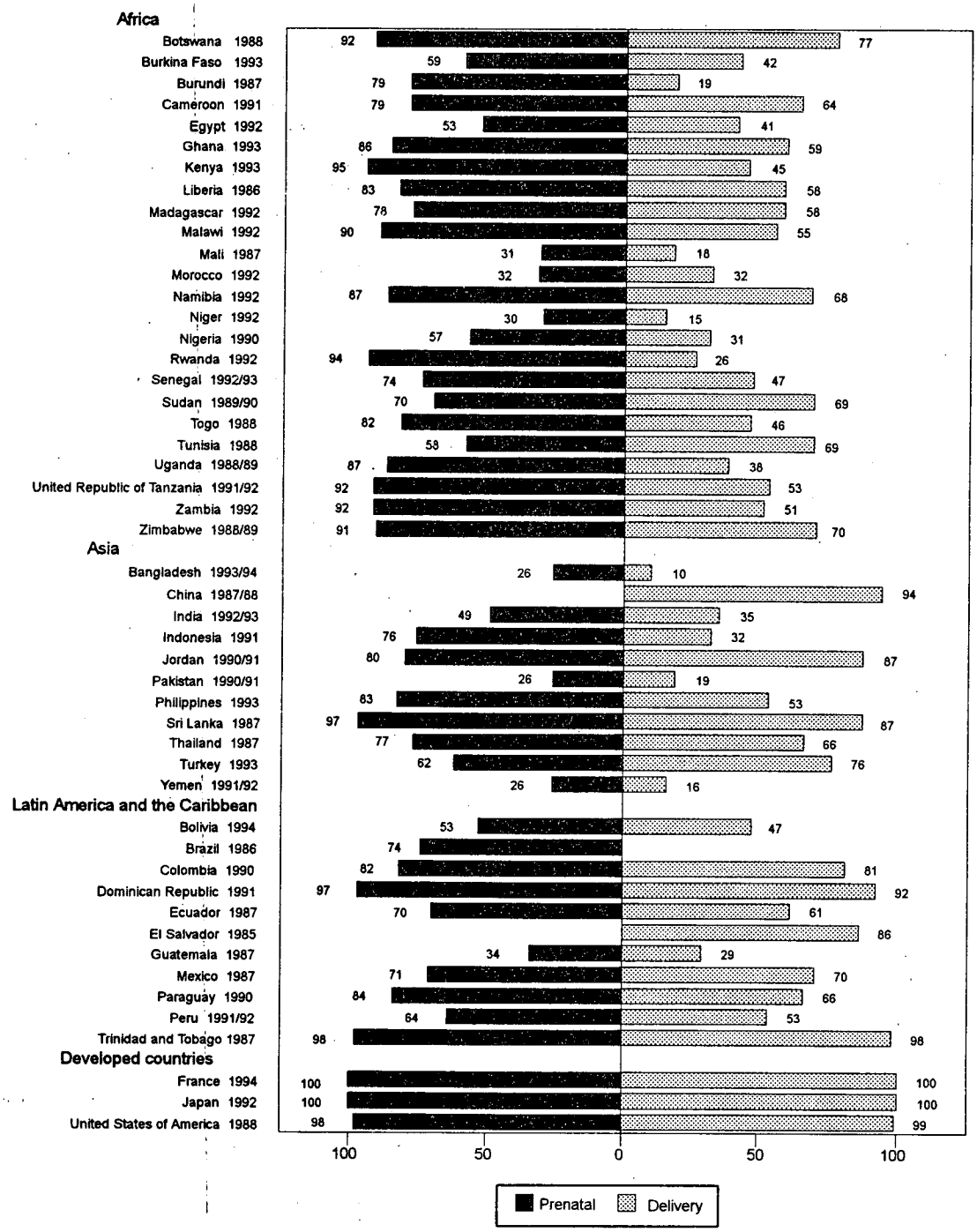
[1]The duration of the childbearing span has been calculated only for women close to the end of their fertile years, that is to say, women aged 40-49. Therefore, the duration pattern presented refers to older cohorts and may well change for younger cohorts. Nevertheless, it serves to illustrate the regional differentials regarding the span of time women devote to childbearing.

[2]All births to women who did not provide a numerical answer to the ideal family size questions are assumed to have been wanted.

[3]Since childbearing is highly valued in most developing countries, the assumption is that little, if any, childlessness is voluntary (Poston, Jr. and others, 1983).

[4]Because over half of the women in Trinidad and Tobago are currently using some method of contraception, it is possible that a significant proportion remain childless voluntarily. The high prevalence of visiting unions and high marital instability may also contribute to this pattern.

Figure 9. Percentage of women receiving prenatal care and professional assistance at delivery



Sources: Dara Carr and Ann Way, *Women's Lives and Experiences* (Calverton, Maryland, Macro International, Inc., 1994); Alan Guttmacher Institute, *Hope and Realities Closing the Gap Between Women's Aspirations and Their Reproductive Experiences* (New York, 1995).

NOTE: Percentages based on data derived from births during the five years preceding the survey.

BOX 2. WOMEN'S KNOWLEDGE OF REPRODUCTIVE PHYSIOLOGY

Although women's awareness of contraceptive methods has improved considerably in recent years, there is still a very large proportion of women that are ill-informed concerning the basic facts of human reproduction (United Nations, 1995c). Prejudices and taboos as regards sexual matters compound this ignorance, creating barriers to women's effective control over their reproductive lives. In the Demographic and Health Surveys, respondents were asked when during the menstrual cycle they thought a woman had the greatest chance of becoming pregnant. In most countries, the proportion of women that correctly identified the middle of the cycle as the fertile period was remarkably low. In five sub-Saharan countries (Botswana, Liberia, Senegal, Uganda and Zimbabwe), less than 10 per cent of the women interviewed provided an adequate answer. Even in countries where the overall level of female education is moderate, the proportion of women with proper understanding of the reproductive cycle rarely goes beyond one fourth.

Knowledge of basic reproductive facts is especially poor among women who have not attended school. In all countries for which data are available, less than 20 per cent of women with no formal education could adequately identify the fertile period. This proportion rises significantly with increasing schooling, suggesting that education contributes to enhancing women's understanding of their body. However, in many countries, women's knowledge of reproductive physiology remains deficient even among the highly educated strata. For women who rely on traditional contraceptive methods, which are usually coitus-related, knowledge of reproductive physiology, particularly, is essential to the preventing of unwanted pregnancies. Successful practice of periodic abstinence, for example, is contingent upon accurate recognition of the fertile period within the ovulatory cycle. However, not only the rate of success of traditional methods, but also the assimilation of modern contraceptive methods is largely contingent on an adequate understanding of reproductive physiology. These data demonstrate the need to enhance women's knowledge of reproductive matters and to expand the scope of family planning programmes to cover sexual and reproductive health education.

PERCENTAGE OF EVER-MARRIED WOMEN WITH CORRECT KNOWLEDGE OF THE FERTILE PERIOD DURING THE OVULATORY CYCLE, ACCORDING TO RESPONDENT'S EDUCATION

		Year				
	Total	*0*	*1-3*	*4.6*	*7-9*	*10+*
Africa						
Botswana	3.3	1.1	1.8	2.8	3.3	10.9
Burundi	21.4	18.6	25.6	32.7	(64.4)	(77.4)
Egypt	16.6	8.4	13.1	15.1	39.6	(57.8)
Ghana	28.5	18.8	20.2	31.5	31.3	45.9
Kenya	22.3	18.9	17.3	18.8	24.9	38.7
Liberia	6.4	4.7	5.0	7.3	10.3	19.0
Mali	11.4	9.4	(9.6)	14.2	38.7	(72.7)
Morocco	17.3	11.7	22.0	33.6	62.2	74.6
Senegal	8.0	5.0	8.9	20.6	(28.0)	(51.0)
Togo	25.3	16.5	28.0	41.4	59.3	74.0
Tunisia	20.5	7.2	15.7	32.6	47.9	72.9
Uganda	9.9	6.3	9.2	9.6	18.3	32.9
Zimbabwe	7.0	4.5	5.4	5.4	6.6	18.5
Asia						
Indonesia	18.0	10.1	10.8	17.7	30.6	47.7
Sri Lanka	43.9	19.5	31.9	35.7	49.5	63.2
Thailand	12.8	2.8	6.0	10.2	18.4	38.7
Latin America and the Caribbean						
Bolivia	33.8	11.9	20.4	34.5	45.6	65.6
Brazil	26.5	16.8	15.2	22.2	32.9	53.9
Colombia	31.5	10.8	17.4	29.4	45.7	70.7
Dominican Republic	19.7	5.6	10.2	13.5	23.7	42.2
Ecuador	24.0	7.3	7.0	17.6	18.2	51.8
Guatemala	12.1	4.0	7.8	21.4	40.9	54.3
Trinidad and Tobago	18.5	..	5.8	10.3	12.8	28.9

Source: Demographic and Health Surveys individual recode files.
NOTE: Figures enclosed in parenthesis are based on fewer than 100 cases.

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III. CONTRACEPTION

Family planning is an integral part of reproductive health. The ability to choose the number and spacing of one's children is recognized as a basic right whose realization has important benefits for women's and children's health. Furthermore, the ability of couples and individuals to control their fertility forms an important basis for the enjoyment of other rights.

The rising use of contraception is the main direct determinant of the continuing fertility decline in the developing countries. In the early 1960s, when the total fertility rate (TFR) in the less developed regions averaged 6.1 children per woman, the level of contraceptive prevalence—current use among couples with the woman of reproductive age—was probably under 10 per cent in the developing countries (United Nations, 1989; Bongaarts, 1984). Recent surveys show that contraceptive prevalence in those regions had risen to 53 per cent by 1991.

The transformation in contraceptive practice reflects the growing desire of couples and individuals to have smaller families and to choose when to have children. It also reflects great increases since the 1960s in the availability of effective modern contraceptives in developing countries and of associated family planning information and services. The introduction of modern methods has also brought about a transformation in contraceptive practice in the more developed regions, although recent changes concern primarily the choice of specific birth control methods rather than the overall level of contraceptive use.

The present chapter provides a global overview of contraceptive prevalence levels and trends, putting them within the context of the motivation to control fertility, changing policies and increased availability of family planning services. The initial sections are based on data pertaining to those in a marital union,[1] because comparative information is much more widely available for married persons than for unmarried women and men. The latter groups are discussed in later sections of this chapter, which also consider differences in contraceptive use according to several demographic and socio-economic factors. The information available confirms that adolescents, rural residents and the uneducated are the most likely to have a need for family planning that is not being met.

A. GOVERNMENT POLICY CONCERNING PROVISION OF MODERN CONTRACEPTIVE METHODS

Since the United Nations World Population Conference at Bucharest in 1974, government policies have shifted in the direction of increased support for services providing modern, effective contraceptive methods (see table 30). Repeatedly at the international level, and most recently at the International Conference on Population and Development held at Cairo in 1994, and the Fourth World Conference on Women held at Beijing, China, in 1995, Governments have affirmed the right of couples and individuals to choose the number and timing of children and to have access to the information and means to do so. Many Governments support family planning as part of basic reproductive health services, even where the Government has no policy to lower fertility levels, or would prefer the birth rate to be higher.

By 1995, only 2 States, the Holy See and Saudi Arabia, out of 190, had an official policy of limiting access to contraception. The long-standing position of the Holy See has been to place major restrictions on all forms of artificial methods of contraception. Since the Royal Decree of 28 April 1975, which banned contraceptives, Saudi Arabia has continued to restrict access to contraceptives. Among the 188 countries that did not limit access to contraceptive methods, the overwhelming majority (81 per cent) provided direct support for family planning services through government-operated facilities such as hospitals, clinics, health posts and health centres, and fieldworkers; an additional 7 per cent provided indirect support, such as grants to non-governmental organizations that provide family planning information or services. Only 17 countries did not provide any support, direct or indirect.

Several Governments—including those of Albania, Bolivia, Cambodia, Ireland and Mongolia—have

TABLE 30. GOVERNMENT POLICY TOWARDS ACCESS TO CONTRACEPTIVE METHODS, BY LEVEL OF DEVELOPMENT, 1974-1995

(Percentage of countries)

Year	Access limited	Access not limited			Total	Number of countries
		No support	Indirect support	Direct support		
World						
1974	7	22	15	55	100	156
1980	7	16	13	64	100	165
1986	4	11	14	72	100	170
1990	4	11	10	76	100	169
1995	1	11	7	81	100	190
Developed countries						
1980	5	10	21	64	100	39
1986	5	10	26	59	100	39
1990	3	21	16	61	100	38
1995	2	14	7	77	100	56
Developing countries						
1980	7	18	11	64	100	126
1986	3	11	11	76	100	131
1990	4	8	8	80	100	131
1995	1	9	7	83	100	134

Source: Population Policy Data Bank maintained by the Population Division of the United Nations Secretariat.
NOTE: Owing to rounding, percentages may not add up to 100.

recently changed, from earlier restrictive or non-interventionist positions, to a policy of direct support for modern contraception.

In 1992, after decades of supporting a pronatalist population policy that prohibited even the mention of family planning, the Government of Albania removed limitations on the sale and distribution of contraceptives and established a national family planning programme.

In 1990, the Government of Bolivia began to reverse its long-standing policy of non-intervention in demographic matters. In several official declarations, the Government maintained that, in order to exercise their right to decide freely and responsibly the number and spacing of children, couples must be well informed about family planning methods and must have easy access to family planning services. It therefore launched a wide National Reproductive Health Campaign. The Government currently provides direct support with regard to the dissemination of family planning information and services as part of its new reproductive health strategy.

After years of a pronatalist policy—one that did not accept contraception and promoted fertility—in 1991 the Government of Cambodia officially recognized the importance of birth-spacing for the health of women and children and began a process of integration of birth-spacing and family planning into health-care programmes. The Maternal and Child Health National Plan, 1993-1995, is directed towards the reaching of a two-year interval between births and a contraceptive prevalence rate of 30 per cent by 1996.

In Ireland, where contraception was completely prohibited before 1973, a slow process of legislative change has been taking place, motivated particularly by the spread of sexually transmitted diseases. Family planning services are increasingly provided and legislation, passed in 1993, permits the distribution of condoms without a prescription in various outlets— particularly vending machines—in both urban and rural areas.

In 1988, aware of the socio-economic burdens of rapid population growth and concerned by high maternal and child mortality in the country, the Government of

Mongolia, which also had long maintained a strong pronatalist population policy—including large incentives to multiparous women and taxes on unmarried and childless persons—began to modify its policy. The Government removed all restrictions with regard to the use, distribution and importation of contraceptives, made abortion available on request and began to widely provide modern contraception and educational programmes for women at risk.

The Governments of Iraq and the Lao People's Democratic Republic also shifted their policies away from the limiting of access to contraceptive methods to the granting of such access, but did not go so far as to provide support for contraceptive services. In 1991, the Government of Iraq removed the embargo on contraceptives and permitted trading in contraceptives without any restrictions. During the period 1986-1991, the Government of the Lao People's Democratic Republic departed from its earlier pronatalist population policy by encouraging the spacing of pregnancies, and by permitting the distribution of contraceptives through private pharmacies. The latter changes were motivated mainly by health concerns but have also been seen as promoting overall development objectives.

The generally favourable position of Governments concerning access to contraception does not necessarily extend to all methods, however, and controls and duties on contraceptive imports and bans on use of mass media for advertising or promoting services limit access de facto in some countries (see Ross, Mauldin and Miller, 1993). In addition, unnecessarily complex procedures or stringent conditions for supplying particular methods also restrict their use, to a degree that cannot be quantified but is probably substantial (Shelton, Angle and Jacobstein, 1992).

Of the major contraceptive methods, sterilization is the one most often subject to legal and administrative restrictions. Many countries in both developed and developing regions once prohibited sterilization for contraceptive purposes. Although formerly restrictive laws and policies have been liberalized in many countries, eligibility for sterilization is still often limited to those who have achieved a certain age or family size, or is contingent upon approval of other family members or a committee (usually of medical providers). Frequently, the requirements differ for male and for female sterilization (see Ross, Mauldin and Miller, 1993; Ross, Hong and Huber, 1985).

B. Levels of contraceptive use

By 1991, the world average level of contraceptive prevalence—the level of current contraceptive use—was 57 per cent of couples with the woman of childbearing age (table 31). The level was 70 per cent in the more developed regions and 53 per cent in the less developed regions.[2] Since contraceptive prevalence has been rising in the developing countries, it is likely that in 1995 the level of use in the less developed regions was approximately 56 per cent.

There are large differences in levels of use within less developed regions, with prevalence averaging nearly 60 per cent in Asia and Latin America and the Caribbean, but only 19 per cent in Africa. There are also substantial subregional differences within some of these larger areas, as discussed below, and much larger differences between countries (figure 10 and annex table A.23).

The countries and areas with information on contraceptive prevalence for 1975 or later account for approximately 90 per cent of the total number of married women aged 15-49, nearly 95 per cent for the less developed and 80 per cent for the developed regions. In most cases, the most recent measure of contraceptive prevalence is for dates during the late 1980s or 1990s, with the average date falling in 1992 for the less developed and 1988 for the more developed regions.[3] Data availability has recently increased, particularly in Africa. Survey data on contraceptive use are available for roughly 90 per cent of the population of Africa, up from about one half in the early 1980s (United Nations, 1984b). Many of these recent surveys were conducted as part of the Demographic and Health Surveys programme.

1. *Africa*

In almost half of the African countries, levels of contraceptive use are under 15 per cent (figure 10 and annex table A.23). Moreover, in 18 of the 38 African countries with available data, prevalence levels of clinic and supply (or modern[4]) methods are 5 per cent or less. With the exception of the islands of Mauritius and Réunion, where contraceptive prevalence exceeds 65 per cent and fertility is low, levels of contraceptive use tend to be higher in Northern and Southern Africa than in the remaining regional groups. In Tunisia, 60 per cent of couples are using contraception; in Algeria, Egypt,

TABLE 31. AVERAGE PREVALENCE OF SPECIFIC CONTRACEPTIVE METHODS, BY REGION[a]

(Percentage)

Major area or region	*All methods* (1)	*Modern methods*[b] (2)	*Sterilization* Female (3)	*Sterilization* Male (4)	*Pill* (5)	*Injectable* (6)	*IUD* (7)	*Condom* (8)	*Vaginal barrier methods* (9)	*Rhythm* (10)	*Withdrawal* (11)	*Other methods* (12)
A. Based on couples with the woman of reproductive age												
World	57	49	18	4	8	1	12	5	1	3	4	1
Less developed regions	53	49	21	4	6	2	14	2	0.2	2	2	1
Africa	19	15	1	0.1	7	2	4	1	0.2	2	1	1
Northern Africa	41	37	2	—	19	0.3	14	1	0.4	2	1	0.2
Sub-Saharan Africa[c]	13	9	1	0.1	3	2	1	1	0.1	2	1	1
Asia and Oceania[d]	58	54	24	5	5	2	16	2	0.2	2	2	0.3
Eastern Asia[d]	79	79	33	9	3	0.1	31	2	0.3	0.4	0.1	—
Other countries	43	36	17	2	6	3	5	3	0.1	3	3	1
Latin America and the Caribbean	59	49	21	1	17	1	6	2	1	6	3	1
More developed regions[e]	70	51	8	5	17	0.1	5	14	2	6	12	1
B. Based on contraceptive users												
World	100	87	32	7	15	2	21	8	1	5	7	1
Less developed regions	100	91	39	8	12	3	25	4	0.4	4	4	1
Africa	100	79	8	0.4	36	10	21	4	1	11	5	5
Northern Africa	100	92	6	—	46	1	36	3	1	4	3	1
Sub-Saharan Africa[c]	100	67	10	1	27	17	8	5	1	16	7	9
Asia and Oceania[d]	100	93	41	9	9	3	28	4	0.3	3	3	0.5
Eastern Asia[d]	100	99	42	12	4	0.1	39	3	0.4	0.5	0.1	—
Other countries	100	84	40	5	15	7	12	6	0.2	7	8	1
Latin America and the Caribbean	100	83	36	1	28	2	11	4	1	10	6	2
More developed regions[e]	100	73	12	7	24	0.1	7	20	3	9	17	1

Sources: *Levels and Trends of Contraceptive Use as Assessed in 1994* (United Nations publication, Sales No. E.96.XIII.13), and files maintained by the Population Division of the United Nations Secretariat.

NOTE: These estimates reflect assumptions about contraceptive use in countries with no data. Information about contraceptive use is taken mainly from representative sample surveys of women of reproductive age. Data pertain to married couples, including, where possible, those in consensual unions.

[a]Based on the most recently available survey data: average date 1991.

[b]Including methods in columns (3) through (9).

[c]Africa, except Northern Africa.

[d]Excluding Japan.

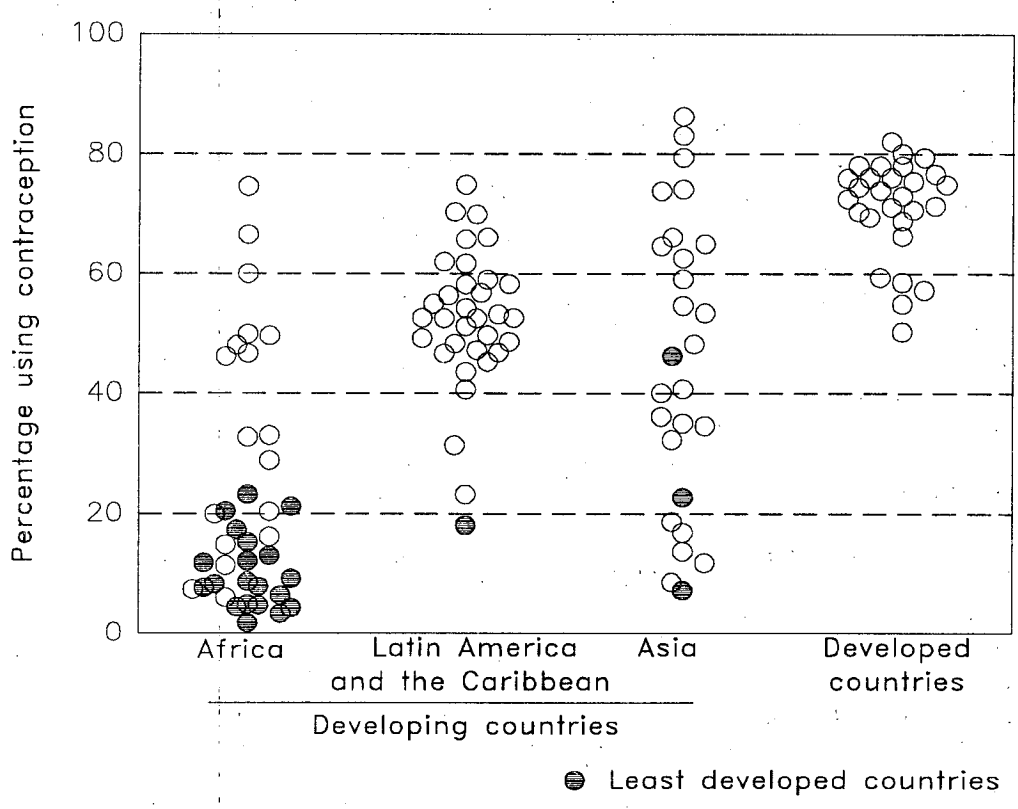
[e]Australia-New Zealand, Europe, Northern America and Japan.

Morocco, South Africa and Zimbabwe, 45-50 per cent; and in Botswan aand Kenya, one third.

2. *Asia*

Developing countries in Asia have levels of contraceptive prevalence ranging from some of the lowest to some of the highest in the world. Fewer than 10 per cent of couples are using contraception in Yemen and Oman, and under 20 per cent in Iraq, the Lao People's Democratic Republic, Myanmar and Pakistan. At the other extreme, Eastern Asian countries, including China, have levels of contraceptive prevalence over 70 per cent, as do Singapore and Thailand in South-eastern Asia. Prevalence levels are above 60 per cent in the Islamic

Figure 10. Contraceptive prevalence in developed and developing countries, by region



Source: Annex table A.23.

Republic of Iran, Sri Lanka, Turkey and Viet Nam. Several of the large Asian countries with low levels of economic development have achieved moderate to high levels of contraceptive use: 41 per cent in India, 46 per cent in Bangladesh, 55 per cent in Indonesia, 65 per cent in Viet Nam and 66 per cent in Sri Lanka.

3. *Latin America and the Caribbean*

Most Latin American and Caribbean countries have moderate to high levels of contraceptive use. The lowest level of use, 18 per cent, was in Haiti in 1994 although this represents an increase from even lower levels a few years earlier. Levels of use in other countries range from 23 per cent in Guatemala to 65-75 per cent in Brazil, Colombia, Costa Rica, Cuba and Puerto Rico.

4. *Least developed countries*

Contraceptive prevalence is under 20 per cent in most of the least developed countries (see figure 10). Bangladesh, the Central African Republic, Lesotho, Nepal and Rwanda have higher levels of current use, ranging from 21 to 46 per cent.

5. *More developed regions*

All the developed countries with data have levels of current contraceptive use of at least 50 per cent, and in 21 of those 28 countries the level is 70 per cent or more. Levels of use tend to be highest in Northern Europe, where the average is 80 per cent. Particularly for Southern Europe, the latest available information often

dates from the late 1970s and may understate the current level of use. However, in the developed regions the most notable recent trends have tended to involve the types of contraceptives employed rather than the overall level of use.

The countries of the former Union of Soviet Socialist Republics (USSR) represent the largest gap in information for the more developed regions. While information has recently become available from several sources, for most of the countries of the former USSR the data available at the national level are not easy to compare with those for other countries, and the overall level of current contraceptive use remains poorly determined.[5] Studies carried out in a number of cities during the mid-1980s showed that contraceptive practice was still heavily dominated by older methods: rhythm, withdrawal and douches accounted for 55-71 per cent of contraceptive practice in the groups surveyed; condoms for 11-32 per cent; and modern methods for 8-19 per cent (Popov, Visser and Ketting, 1993). Use of intrauterine devices (IUDs) has been increasing rapidly, however, beginning in the early 1980s (Avdeyev and Troitskaya, 1991; Barkalov and Darsky, 1994). Three countries formerly included in the USSR have recently conducted surveys comparable with those summarized in annex table A.23—Belarus in 1995, Estonia in 1994 and Kazakhstan in 1995. In these cases, the level of contraceptive prevalence is in the range of 50-70 per cent, and the IUD is by far the most common method.

C. Recent trends in contraceptive use

1. *Developing countries*

Most developing countries with available trend data show a substantial increase in contraceptive use. The change in prevalence between an earlier survey and the most recent one is shown in annex table A.23; the earlier survey is, on average, about 10 years earlier than the most recent one.[6] Trends over a longer period are shown in figure 11.

Over the recent past, prevalence increased by at least 1.0 percentage point per annum—or 10 points over a decade—in two thirds of the developing countries, and by at least 2.0 points annually in 15 per cent of the countries. The overall yearly increase in contraceptive prevalence for the developing countries listed in annex table A.23 is 1.2 percentage points per annum, when weighted by the number of married women of reproductive age. The averages by region are 1.2 percentage points annually for Africa, 1.2 points for Asia, excluding Japan, and 1.7 points for Latin America and the Caribbean. It should be noted, however, that countries with trend data are non-representative in a number of ways; they tend to rank higher on indicators of socio-economic development and to have lower fertility and stronger family planning programmes than countries lacking such data[7] (Weinberger, 1989). In Africa in particular, the countries with trend data may indicate a deceptively high average growth rate for the region as a whole.

At the same time, surveys conducted in the past few years have continued to add to the evidence of increasing use of contraception in continental sub-Saharan Africa. During the period covered in annex table A.23, prevalence increased by at least 1.0 percentage point per annum in Botswana, Cameroon, Kenya, Lesotho, Rwanda, South Africa, the United Republic of Tanzania and Zimbabwe. There was, however, little or no increase in Mauritania, Nigeria or, Senegal during the period examined, and several additional countries that lack trend data have very low levels of use, so that little upward trend could have occurred.

The increase in contraceptive use during the recent past has been most rapid in countries that had a moderate level of use at the beginning of the period considered. Where prevalence was in the range of 15-50 per cent at the start of the period, contraceptive use subsequently grew by more than 1.0 percentage points per annum in over 80 per cent of the countries (table 32). By contrast, increases of that size occurred in only about half of the countries where prevalence was initially either below 15 per cent or above 50 per cent.

While there are exceptions, countries in which contraceptive use began to grow from very low levels have usually experienced a sustained growth in prevalence which in most cases has continued up to the most recent observation (figure 11). Once contraception has been adopted by a significant proportion of the population, its use usually continues to spread, so that eventually nearly all couples resort to it at some point in their lives. Very rapid rates of growth have not been as common during the most recent period as earlier (Weinberger, 1989), but the general picture is still one of sustained rapid growth in contraceptive prevalence. There is no way of knowing whether levels of use in most of the developing countries

Figure 11. Trends in the percentage of married women of childbearing age currently using contraception

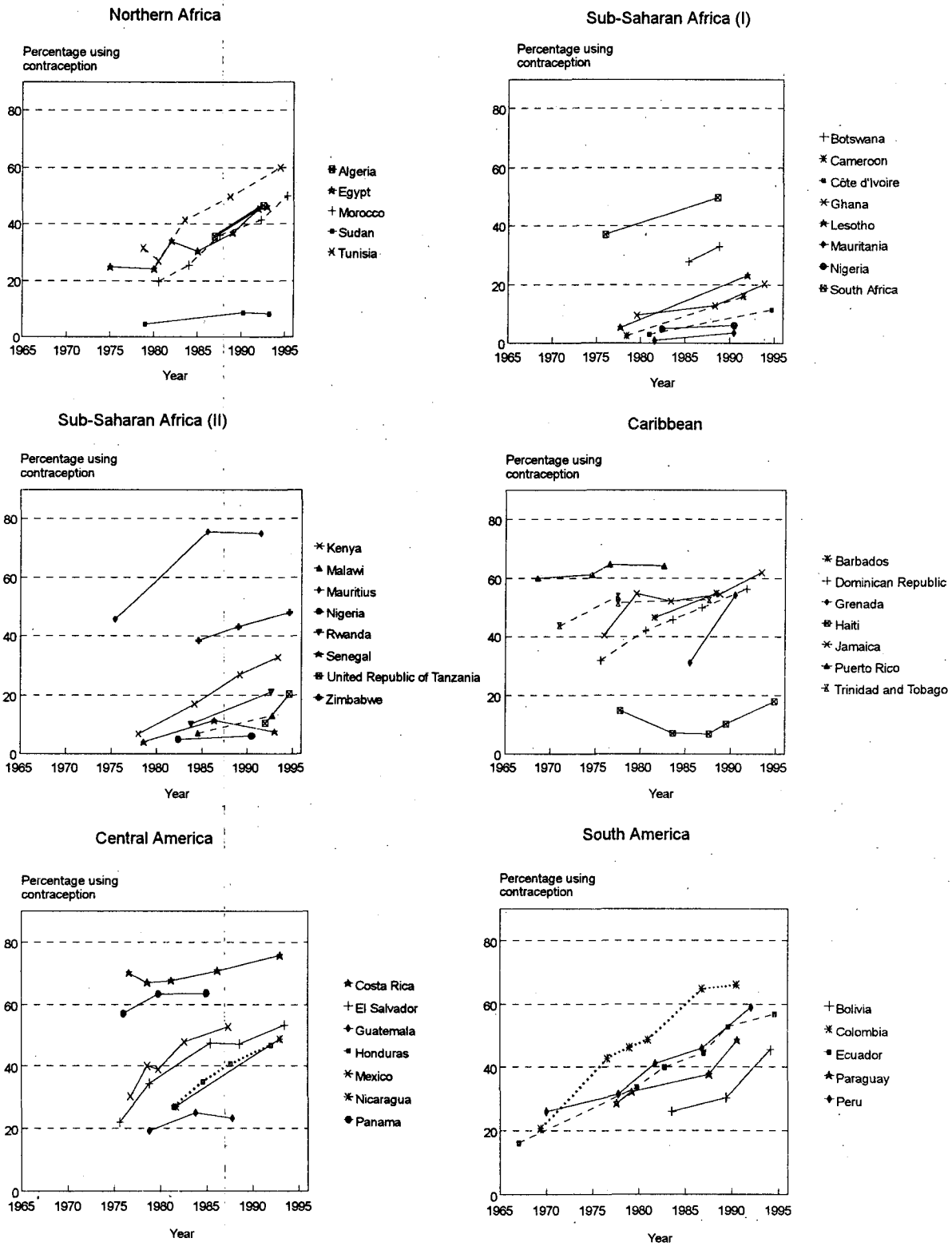
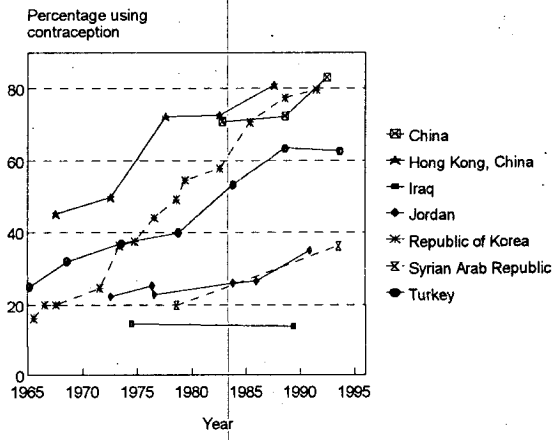
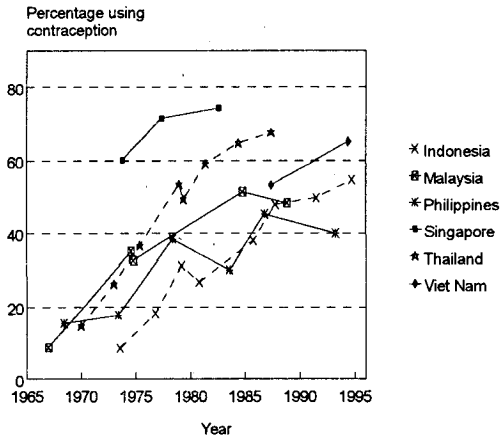


Figure 11 (*continued*)

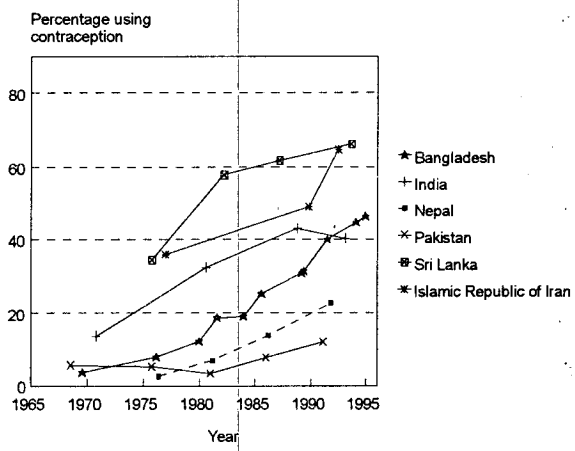
Eastern and Western Asia



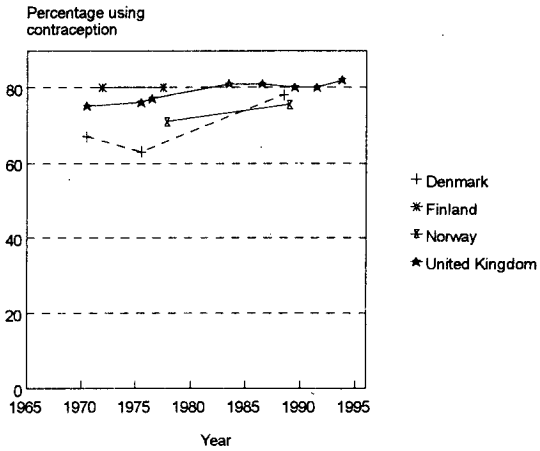
South-eastern Asia



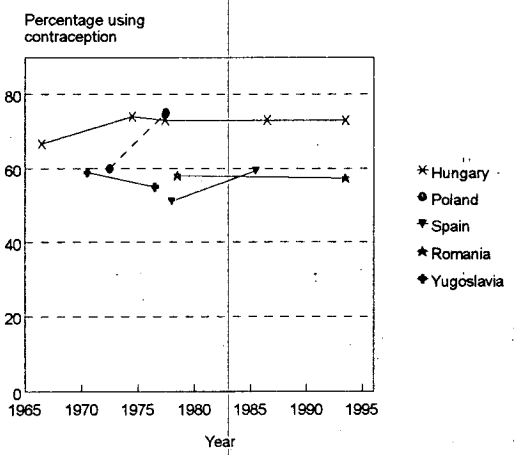
South-central Asia



Northern Europe



Eastern and Southern Europe



Western Europe, Japan and Northern America

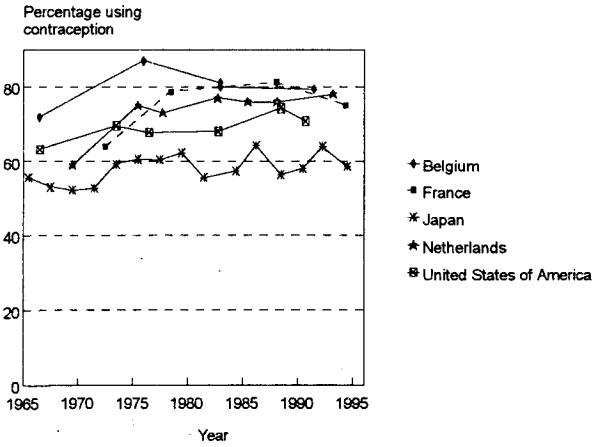


TABLE 32. ANNUAL INCREASE IN CONTRACEPTIVE PREVALENCE, BY LEVEL OF USE AT BEGINNING OF PERIOD, DEVELOPING COUNTRIES

Prevalence at earlier time (percentage)	*Annual percentage-point increase in contraceptive prevalence*		
	<1.0	*1.0-1.9*	*2.0 or more*
< 15	Côte d'Ivoire Ghana Iraq Malawi Mauritania Pakistan Nigeria Senegal Sudan	Cameroon Haiti Lesotho Nepal Rwanda	United Republic of Tanzania
15-34	Guatemala India Jordan	Bolivia Botswana Egypt Honduras Kenya Malaysia Nicaragua Philippines Syrian Arab Republic	Bangladesh Grenada Mexico Morocco
35-49	Dominica El Salvador Saint Lucia	Barbados Colombia Dominican Republic Ecuador Indonesia Islamic Republic of Iran Paraguay Peru South Africa Tunisia Zimbabwe	Algeria Antigua Saint Vincent and the Grenadines
50-64	Trinidad and Tobago Panama Puerto Rico Sri Lanka	Jamaica Singapore Thailand Turkey Viet Nam	Republic of Korea
65+	Costa Rica Mauritius	China Hong Kong, China	

Source: Annex table A.23.

will grow continuously until they reach developed-country levels, though.

2. *Developed countries*

In most countries in the more developed regions, the level of contraceptive use has either increased modestly in recent years or remained approximately constant. A large increase, from 60 to 75 per cent, was recorded in Poland in the 1970s, and in Spain prevalence grew from 51 to (still a relatively low) 59 per cent between 1977 and 1985. In several other developed countries, the most recent prevalence figure indicates a modest decline from earlier levels, and in Japan the levels have fluctu-

ated since the early 1970s. Those small changes may be due mainly to methodological differences between surveys and changes in the proportion of women at risk of pregnancy.

D. Types of contraception employed

Most users of contraception are women, and most use modern methods. Relatively effective clinic and supply ("modern") methods account for an estimated 87 per cent of contraceptive use worldwide (table 31). The three main "female" methods—female sterilization, intrauterine devices (IUDs) and oral pills—account for over two thirds of contraceptive practice worldwide, and three fourths of use in the less developed regions. Modern methods in general make up a larger fraction of contraceptive use in the developing than in the developed countries—estimated at 91 per cent and 73 per cent, respectively. The prevalence of clinic and supply methods, based on couples with the woman of reproductive age, averages 51 per cent in the more developed regions and 49 per cent in the less developed regions (table 31).

The prevalence of non-supply and traditional methods, again based on couples with the woman of reproductive age, differs more between the developed and the developing countries, at 19 per cent and 5 per cent, respectively. This group of methods includes periodic abstinence or rhythm, withdrawal (coitus interruptus), abstinence, douching and various folk methods. The higher levels of use of these methods in the developed countries reflect the continuing influence of patterns of fertility control established before the era of modern contraceptive methods and also the lack of wide availability of newer methods in some countries, including the former USSR (Popov, Visser and Ketting, 1993). The most recent figures date from the 1970s in some of the European countries and reliance on traditional methods may have decreased since; such trends are observed in countries that have had more recent surveys, especially Belgium, France and Hungary. However, several Eastern European countries with surveys conducted in the 1990s still show high prevalence levels of traditional methods: the Czech Republic (24 per cent), Romania (43 per cent) and Slovakia (33 per cent).

In most countries, no single method accounts for as much as half of contraceptive practice, but there are exceptions, usually involving sterilization or the pill. Even in those developed countries where the overall level of contraceptive use has remained nearly stable in recent years, the relative importance of different methods has often changed markedly. In general, a rising use of female sterilization is the most important trend in both developed and developing countries, yet there are many individual countries where other methods are responsible for most of the recent trend. While there is a general tendency for modern methods as a group to become more predominant over time, there is little sign that the widely varying national patterns of use are converging towards the same method mix.

1. *Sterilization*

Sterilization (male and female) accounts for nearly 40 per cent of world contraceptive use. The prevalence of sterilization is highest in Asia (except Western Asia) and the Americas, while this method is uncommon in sub-Saharan Africa, Western Asia and Eastern and Southern Europe. In at least 10 countries, sterilization makes up over half of all contraceptive use, and in at least 20 countries sterilization is used by 20 per cent or more of couples with the woman of reproductive age (United Nations, 1996).

Female sterilization is much more common than male sterilization—18 per cent versus 4 per cent of couples with the woman of reproductive age, respectively, for the world as a whole. In most countries where trends can be traced, female sterilization has increased in prevalence more rapidly than other methods, often accounting for almost all of the recent increase in contraceptive prevalence. In some cases, growth in use of sterilization has meant a decline in the use of other modern methods. Sterilization is one of two major methods (the IUD is the other) to have achieved higher average prevalence in the developing than in the developed countries.

2. *Oral contraceptives*

The oral contraceptive pill makes up an important fraction of contraceptive use in the large majority of countries, although not in the two most populous, China and India. The pill is especially uncommon in Japan, where it has not been approved for use as a contraceptive. Globally, the pill is the method of an estimated 15 per cent of contraceptive users worldwide, 12 per cent in the developing countries and 24 per cent in the more developed regions. By region, the share of the pill in total contraceptive practice is highest in Africa, Latin

America and the Caribbean and Northern and Western Europe. In a few European countries—Austria, France, Hungary, Germany and the Netherlands—over one third of married women surveyed were currently using the pill. The data presented here are for married women, but in some countries (mostly developed) contraceptive prevalence among never-married women reaches considerable levels, and the pill is often the most favoured method among those women. For countries with trend information, the prevalence of pill use presents a mixture of increases and decreases with little overall trend in the course of the recent past. In a few cases, pill prevalence declined during the 1970s but has shown renewed growth more recently; such cases include the Netherlands, the United Kingdom of Great Britain and Northern Ireland and the United States of America.

3. *Intrauterine devices*

IUDs account for about one fifth of contraceptive use worldwide. About two thirds of the world IUD users live in China where, according to a 1992 survey, one third of couples were using IUDs. Other countries with high levels of IUD use include Kazakhstan (40 per cent of couples), Cuba, Estonia and Viet Nam (over 30 per cent) and Belarus, Egypt, Finland, France, Norway and Sweden (20-29 per cent). The IUD is also an important method in many other countries, although in over half it accounts for under 10 per cent of total contraceptive use. In most countries with information about trends, IUD has increased its share, or has retained approximately the same share, of total use.

4. *Condom*

Globally, 8 per cent of contraceptive users use condoms. The condom tends to be more popular in the developed than in the developing countries. Condom prevalence is far higher in Japan than anywhere else—in 1994, about three fourths of Japanese contraceptive users (and 46 per cent of couples) used condoms. Other regions where this method is relatively important include Europe, Northern America, some countries in the Caribbean and several developing countries in Asia, including Hong Kong, China; and Singapore. In Africa, condoms account for only about 4 per cent of contraceptive use (about 1 per cent of couples) according to women's reports. However, men tend to report higher levels than women of use of this method, and condoms are used especially widely by unmarried men.

Since the advent of the acquired immunodeficiency syndrome (AIDS) pandemic, there has been renewed promotion of the condom as a means of preventing transmission of sexually transmitted diseases. Many of the surveys covered here were conducted before such promotional campaigns could have had much impact. Although the surveys show few trends in condom use in most countries, substantial increases in condom use are evident in several countries, including Costa Rica, from 8 to 16 per cent of couples between 1981 and 1992/93; Grenada, from 8 to 22 per cent between 1985 and 1990; Hong Kong, from 13 to 26 per cent between 1977 and 1987; Jamaica, from 8 to 18 per cent between 1983 and 1993; the Republic of Korea, from 5 to 10 per cent between 1979 and 1991; Singapore, from 17 to 24 per cent between 1973 and 1982; and Spain, from 5 to 12 per cent between 1977 and 1985. In the United Kingdom, condom use among single women increased from 7 per cent in 1986 to 18 per cent in 1993, while showing much less change among the married population (United Kingdom Office of Population Censuses and Surveys, 1993). Similarly, in the United States, use of the condom increased among single women, from 4 to 13 per cent between 1982 and 1990, while remaining stable, at about 10 per cent, among married women (Peterson, 1995).

5. *Other clinic and supply methods*

Injectable hormonal methods account for an important fraction of overall contraceptive use in some countries, especially in sub-Saharan Africa and South-eastern Asia. Although for the world as a whole injectables make up only 2 per cent of contraceptive practice, in sub-Saharan Africa they account for an estimated 17 per cent of all use. The highest prevalence of injectables is seen in South Africa, where 20 per cent of married women of reproductive age were using this method in 1988, and Indonesia, with 15 per cent prevalence in 1994.

The Norplant subdermal implant, which is the latest major addition to the range of hormonal methods available, is still too new to have achieved a significant prevalence level in most of the surveys covered here. However, in Indonesia, 5 per cent of married women were using Norplant in 1994.

Vaginal barrier methods—diaphragm, cervical cap and spermicides (including the contraceptive sponge, foams, jellies and creams)—account for about 1 per cent

of contraceptive practice. In most countries, these methods have either decreased in popularity compared with other methods or maintained a roughly constant low share of current practice. However, use of vaginal barrier methods is likely to be understated to the extent that they are employed in combination with or as a back-up to other methods, particularly condoms.

6. *Traditional methods*

The prevalence of the non-supply or traditional methods as a group has changed little on average in developing countries in recent years and has declined on average in the developed countries. The main methods in this broad category are rhythm and withdrawal. For the world as a whole, periodic abstinence (mainly the calendar rhythm method) is used by an estimated 3 per cent of couples, and withdrawal by 4 per cent, with prevalence of both methods being considerably higher in more developed than in less developed regions.

Withdrawal was the main contraceptive method used in Europe before modern methods were invented, and it was still used by more than 25 per cent of couples at the most recent survey in Bulgaria, Italy, Portugal, Romania, Slovakia and the former Socialist Federal Republic of Yugoslavia. Western Asian countries with high levels of withdrawal use include Bahrain, the Islamic Republic of Iran, Lebanon and Turkey. Subnational surveys also show substantial reliance on withdrawal in the former USSR during the 1980s (Popov, Visser and Ketting, 1993).

In most countries in other regions, rhythm is more widely used than withdrawal. Rhythm makes up over half of all contraceptive use in Bolivia, Burundi, Madagascar and Togo. The highest prevalence of this method is observed in Poland (30 per cent of couples in 1977) and Peru (21 per cent in 1991/92). Surveys do not always distinguish between the calendar rhythm method and newer periodic abstinence methods designed to improve effectiveness. Where survey questions have distinguished among these methods, calendar rhythm has been found to be the main variant used.[8] Countries with relatively high levels of use of newer periodic abstinence methods include Japan and Mauritius, where 7 per cent and 4 per cent of couples, respectively, were using one of the newer methods.

Although most surveys have asked specifically about use of the methods discussed above, there has been less consistency in survey questions with regard to abstinence, douching and a variety of folk methods, and they are sometimes excluded from the definition of contraception. Some surveys have excluded the period of abstinence following a birth from the definition of "contraception", while others have included it if the respondent mentioned it as the current method. This can have a large impact on the apparent level of contraceptive use in some sub-Saharan African countries where the period of abstinence traditionally is observed for a year or more after a birth.

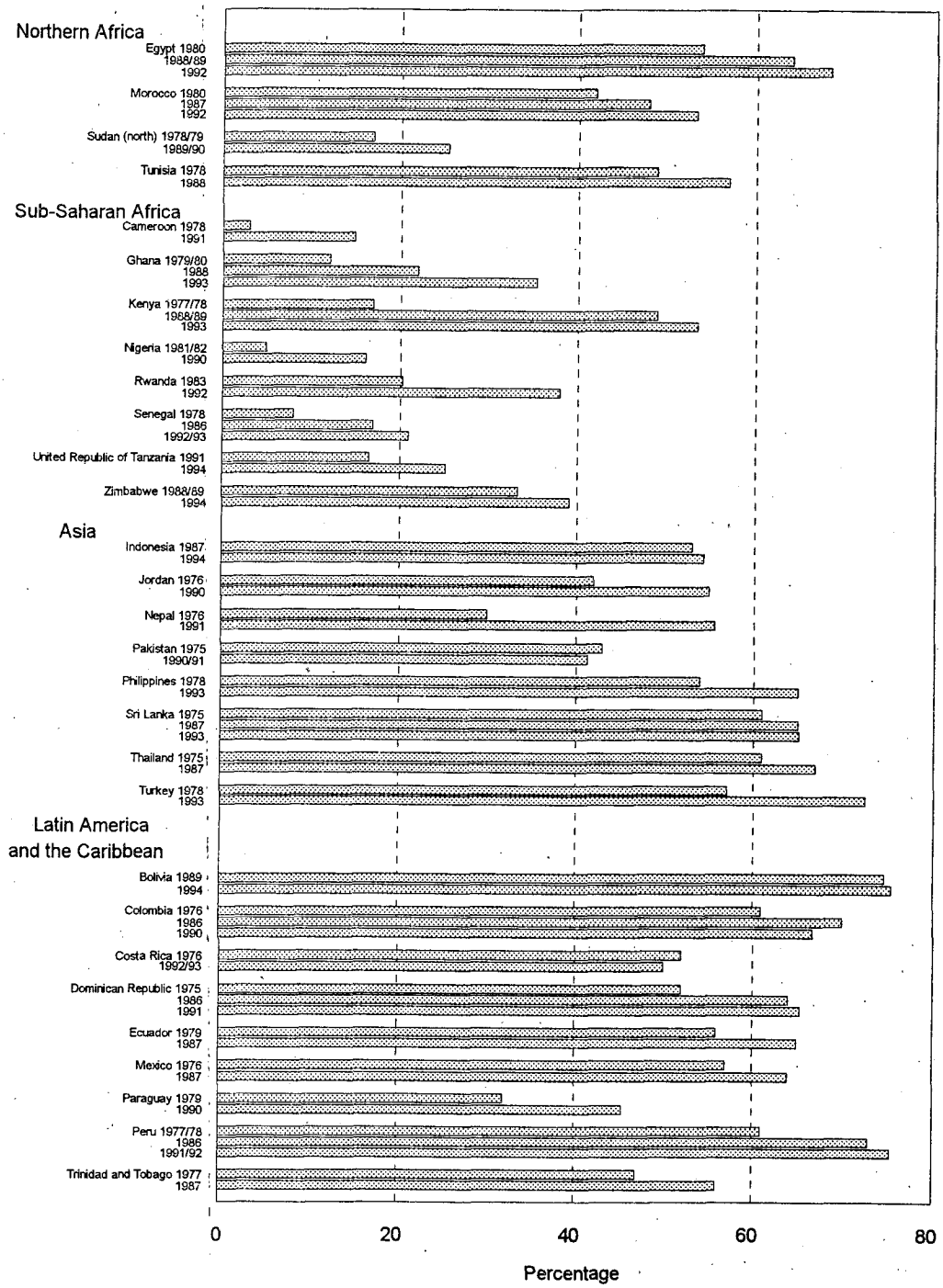
E. Fertility desires and the unmet need for contraception

The sustained rise in contraceptive use in developing countries would not have occurred if couples and individuals bearing children during this period had been satisfied with the high "natural" fertility levels of the past. Yet, as discussed in chapter II, despite the recent increases in contraceptive practice, effective control over fertility has eluded many women.

The concept of an unmet need for family planning draws attention to the gap between motivation to control fertility and the actual use of contraception. In most developing countries surveyed during the 1970s, a large proportion of women who felt an apparent need for family planning were not using contraception. For instance, a United Nations study covering 38 countries showed that among married non-pregnant fecund women who wanted no more children, an average of nearly 60 per cent were not using contraception. For, on average, 25 per cent of older women (aged 40-49) the number of their living children was greater than the number they reported wanting (United Nations, 1987).

Use of contraception subsequently grew substantially in the developing countries. It does not necessarily follow that the unmet need has diminished accordingly though, because recent surveys show that the number of children desired has also been declining (see chap. II). The percentage of women of childbearing age who currently want no more children has increased since the 1970s in nearly all the developing countries where trends can be examined (figure 12). The average increase between the earliest and latest period shown in the figure is 11 percentage points. At the most recent date shown, over half of the women in most of the countries, and over two thirds in Bolivia, Colombia,

Figure 12. Percentage of married fecund women wanting no more children: trend data



Sources: *Fertility Behaviour in the Context of Development: Evidence from the World Fertility Survey*, Population Studies, No. 100 (United Nations publication, Sales No. E.86.XIII.5); Charles F. Westoff and Luis HernandoOchoa, *Unmet Need and the Demand for Family Planning*, Demographic and Health Surveys Comparative Studies, No. 5 (Columbia, Maryland, Institute for Resource Development/Macro International, Inc., 1991); and national survey reports.

Egypt, Peru, Thailand and Turkey, wanted no more children. Although the percentages remain lower in sub-Saharan Africa than in other regions, the amount of recent change has been at least as great in Africa as elsewhere. In the 1970s, surveys typically showed that under 20 per cent of women in sub-Saharan African countries wanted to stop childbearing; for countries with surveys conducted in the 1990s, the proportions were above 20 per cent in most cases and had risen to 54 per cent in Kenya (figure 12).

Women wanting to stop childbearing are not the only ones needing family planning services, since many couples and individuals want more children, but after a delay. In many African countries, women wanting to delay a pregnancy greatly outnumber those who want no more children.

Estimates of total need and unmet need for family planning are shown in table 33 for 43 developing countries surveyed in the late 1980s and early 1990s. For all countries considered together, the average proportion identified as having an unmet need was 24 per cent.[9] For regional groups, the level was highest in sub-Saharan Africa (29 per cent, on average) and lowest in Asia and Latin America and the Caribbean (18 per cent and 20 per cent). For individual countries, the proportions range from 11 per cent in Thailand and in Turkey to 36-40 per cent in Kenya, Malawi, Rwanda and Togo. Unmet need tends to be highest in sub-Saharan Africa, even though the total estimated level of need or demand is lowest there; on average, 44 per cent of married women in the sub-Saharan African countries were identified as being in need of contraception to space or limit births, as compared with 60 per cent in Northern Africa, 67 per cent in Asia and 73 per cent in Latin America and the Caribbean. The high level of unmet need in Africa thus reflects the low level of use of contraception among women with an expressed motivation to space or limit births.

Although the regional patterns just discussed suggest that unmet need is high where contraceptive prevalence is low, a closer look reveals a more complex pattern. As figure 13 shows, there is a curvilinear relationship between levels of contraceptive use and unmet need. Unmet need is highest in the countries with contraceptive prevalence in the range of 15-30 per cent, and unmet need does not fall below 15 per cent of women except where contraceptive prevalence exceeds 50 per cent. This curvilinear pattern is consistent with the idea that changes in fertility desires are likely to outpace changes in family planning practice during the early stages of fertility decline. Where trend data on unwanted fertility are available, there is some direct evidence that the proportions of unwanted fertility tend to increase for countries in the earlier stages of fertility decline (Bongaarts, 1990). However, for the few countries in figure 13 where trends can be compared, unmet need declined over time in every case—total need increased in most of the countries, but contraceptive practice grew even more.

It is, of course, one thing to identify a gap between fertility desires and contraceptive practice and another to explain it or to devise appropriate policy measures to reduce it. Nonetheless, crude indicators of unmet need, such as those just discussed, help focus attention on the more detailed investigations that are needed to devise policies and programmes. Evidence about the reasons for non-use of contraception is reviewed in section E below.

An unmet need for family planning can be indicated in other ways than through comparisons of fertility desires with contraceptive practice—lack of knowledge of contraceptive methods or of a place to obtain it, and incorrect beliefs about methods, for instance, represent needs for information and services. Unmet need for family planning may also be manifested less directly, through high rates of unplanned and unwanted pregnancies and abortion (see chaps. II and IV).

Broader concepts of unmet need for family planning have been proposed, encompassing men and women who are using contraception but lack information on or access to a method that would be better for them, or those suffering side effects or using methods ineffectively because of a lack of adequate follow-up or information (Dixon-Mueller and Germain, 1992). Such needs have to do with the inadequate quality of family planning information and services, the range of available methods and the appropriateness of specific methods for different individuals (see Bruce, 1990). The discussion returns to some of these points in section E below.

With respect to basic knowledge of contraception, recent surveys show that in most developing countries in Asia and Latin America and the Caribbean, all but a small percentage of women have at least heard of some type of contraceptive method. However, this is not the case in many African countries. As shown in annex

table A.5, in many African countries a large proportion of the population still lacks even the most minimal family planning information and services. For dates in the 1980s or 1990s, at least 90 per cent of women in Asia and Latin America and the Caribbean knew of a method in over 80 per cent of countries with available information; the exceptions in these regions and Latin America were Bolivia, Ecuador, Guatemala, Haiti, Honduras, Pakistan and Yemen; but in Africa, the proportion of women having this high level of recognition of contraceptives was noted in under 40 per cent of countries during the same period. In several sub-Saharan African countries—Benin, Côte d'Ivoire, Mali and Nigeria—fewer than half of the women had heard of any contraceptive method. In many other sub-Saharan African countries, knowledge is more widespread, but still far from universal. It should be emphasized that the criterion used here for "knowledge" of a method is very minimal: it reflects the percentage of women who reported that they had heard of one of the specific methods on a list read to them by an interviewer. Knowing of a method thus does not imply a correct understanding of how to use it, or of its effectiveness or possible risks and benefits.

TABLE 33. TOTAL NEED AND UNMET NEED FOR FAMILY PLANNING, SELECTED DEVELOPING COUNTRIES

		Percentage of women in a union with						
		Unmet need			*Total need*			*Percentage of need satisfied*
Region and country	*Year*	*Total*	*For birth-spacing*	*To limit*	*Total*	*For birth-spacing*	*To limit*	
Africa								
Northern Africa								
Egypt	1992	22	7	15	70	16	55	69
Morocco	1992	20	9	11	64	24	40	69
Sudan (north)	1989/90	26	18	7	34	23	11	25
Tunisia	1988	20	11	9	71	25	46	72
MEAN		22	11	11	60	22	38	59
Sub-Saharan Africa								
Botswana	1988	27	19	7	62	39	23	56
Burkina Faso	1992/93	33	24	9	41	30	11	20
Burundi	1987	25	18	7	34	24	10	26
Cameroon	1991	22	17	4	38	28	9	42
Ghana	1993	33	24	9	53	34	19	38
Kenya	1993	36	22	13	68	32	36	48
Liberia	1986	33	20	13	39	23	16	17
Madagascar	1992	33	17	15	49	24	25	34
Malawi	1992	36	26	9	49	34	15	27
Mali	1987	23	17	6	28	21	6	17
Namibia	1992	22	15	7	51	26	24	57
Niger	1992	19	16	2	23	20	3	19
Nigeria	1990	22	17	5	28	20	7	21
Rwanda	1992	37	24	13	58	34	24	36
Senegal	1992/93	29	23	7	37	27	10	20
Togo	1986	40	29	12	52	36	16	23
Uganda	1988/89	27	20	7	32	22	10	15
United Republic of Tanzania	1991/92	27	19	8	38	25	13	28
Zambia	1992	31	23	8	46	32	14	33
Zimbabwe	1988/89	22	10	12	65	38	27	67
MEAN		29	20	9	44	28	16	32
Asia								
Bangladesh	1993/94	18	10	8	64	22	42	72
Indonesia	1991	14	8	6	65	27	38	78
Jordan	1990	22	10	12	65	23	42	66
Sri Lanka	1987	12	7	5	76	22	54	84
Pakistan	1990/91	32	17	15	44	19	25	27
Philippines	1993	26	13	13	68	23	45	62
Thailand	1987	11	6	6	77	22	55	86
Turkey	1993	11	4	8	76	17	59	85
MEAN		18	9	9	67	22	45	70

TABLE 33 (*continued*)

Region and country	Year	Percentage of women in a union with: Unmet need: Total	Unmet need: For birth-spacing	Unmet need: To limit	Total need: Total	Total need: For birth-spacing	Total need: To limit	Percentage of need satisfied
Latin America and the Caribbean								
Bolivia	1993/94	24	6	17	74	20	54	68
Brazil	1986	13	5	8	81	24	57	84
Colombia	1990	12	4	7	80	25	55	86
Dominican Republic	1991	17	9	8	75	21	54	77
Ecuador	1987	24	11	13	71	24	47	66
El Salvador	1985	26	14	12	74	22	52	65
Guatemala	1987	29	16	13	53	22	31	45
Mexico	1987	24	11	13	79	26	53	69
Paraguay	1990	15	8	7	67	34	32	77
Peru	1991/92	16	4	11	81	21	60	81
Trinidad and Tobago	1987	16	8	8	71	29	43	77
MEAN		20	9	11	73	24	49	72
TOTAL MEAN		24	14	9	57	26	32	52

Sources: Charles F. Westoff and Akinrinola Bankole, *Unmet Need: 1990-1994*, Demographic and Health Surveys Comparative Studies, No. 16 (Calverton, Maryland, Macro International, Inc., 1995); and Charles F. Westoff and Luis Hernando Ochoa, *Unmet Need and the Demand for Family Planning*, Demographic and Health Surveys Comparative Studies, No. 5 (Columbia, Maryland, Institute for Resource Development/Macro International, Inc., 1991).

NOTE: In-union women with an unmet need are those who are fecund but are not currently using contraception, and want no more children or want the next child with a delay of two years or more. Among women who are currently pregnant or amenorrhoeic following a birth, those who were using contraception at the time they became pregnant or who stated that the pregnancy was not intentional are also considered to have unmet need. Total need includes those with unmet need, plus those who are currently using contraception, plus pregnant or amenorrhoeic women whose pregnancy resulted from contraceptive failure (where the information on such failure was available).

In most developing countries, modern clinic and supply methods are the most widely known, particularly oral contraceptive pills, IUDs and female sterilization. Even where high levels of recognition of one or more of these methods have been reached, many women may be unaware of other methods (United Nations, 1996).

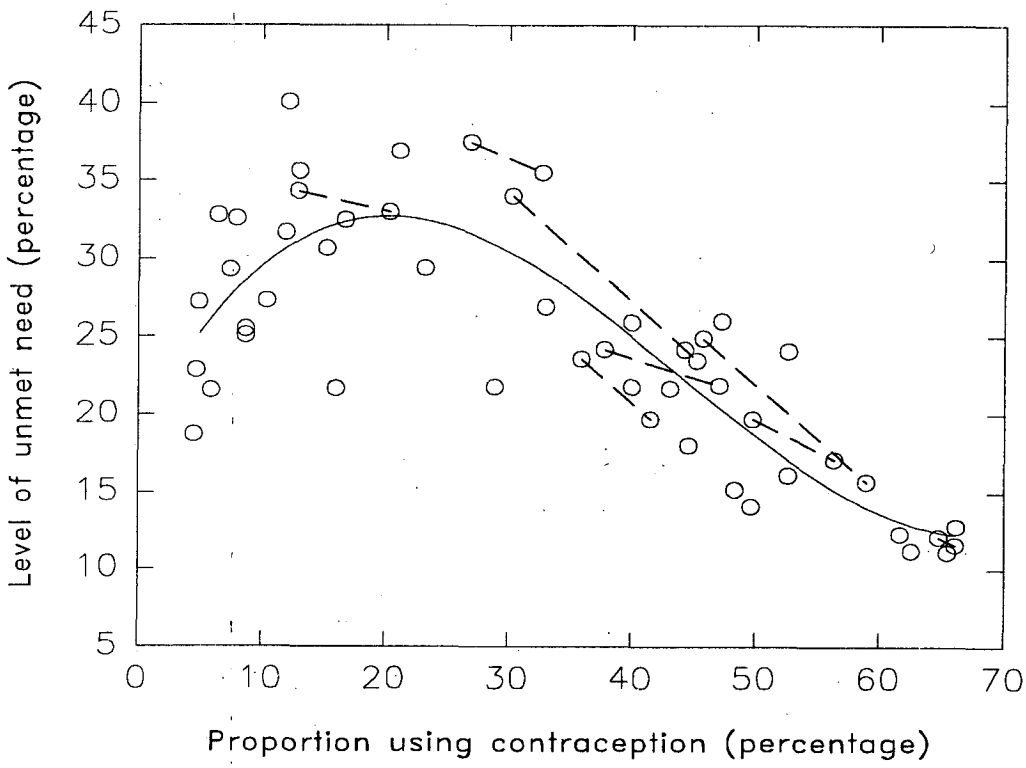
Comparison with earlier surveys shows that in many cases, there has been a substantial recent rise in the percentage who know about contraception (see annex table A.5). For instance, although in 1991 knowledge was still far from universal in Cameroon (72 per cent of women had heard of a method) there had been a marked increase over the figure for 1978 (34 per cent). Most countries where knowledge had been under 90 per cent at the earlier date experienced large increases.

The percentage of women who know of a place from which to obtain family planning information or services is lower—sometimes much lower—than the percentage who have heard of a contraceptive method (annex table A.5). Lack of knowledge of services may reflect either their unavailability or ineffective publicity. In all, under 80 per cent of women knew of a place from which to obtain services in over 60 per cent of the African countries, in one third of the Asian countries and in one fourth of the Latin American and Caribbean countries at the most recent available date. In Asia, 90 per cent or more of women knew of a service outlet in over three fourths of the countries, and in Latin America and the Caribbean in almost 60 per cent of countries. Knowledge of outlets is also as high in the Northern African countries (Egypt, Morocco and Tunisia) with available information, but in only 2 of 23 sub-Saharan countries (Botswana and Zimbabwe).

Access to family planning services has also been studied through "community" surveys, in which the proximity to services of various kinds is assessed and verified. This type of investigation can provide a more objective view of service availability, but results are available for only a limited number of countries. A review of findings for 11 such surveys conducted during the late 1980s[10] (Wilkinson, Njogu and Abderrahim, 1993) showed that a facility providing family planning services was available within 5 kilometers (km) of the community for between 22 per cent (in Uganda) and 96 per cent (in Egypt) of rural women. In Togo, 30 per cent, and in Uganda, 60 per cent of rural women had no facility available within 15 km. The nearest facility often did not provide a wide range of methods; pills and condoms were more likely than other methods to be available nearby.

Another type of assessment of the availability of family planning services is provided by the series of

Figure 13. Level of unmet need for family planning, by proportion of men and women currently using contraception, 43 developing countries



Sources: Charles F. Westoff and Luis Hernando Ochoa, *Unmet Need and the Demand for Family Planning*, Demographic and Health Surveys Comparative Studies, No. 5 (Columbia, Maryland, Institute for Resource Development/Macro International, Inc., 1991), table 4.2; and Charles F. Westoff and Akinrinola Bankole, *Unmet Need: 1990-1994*, Demographic and Health Surveys Comparative Studies, No. 16 (Calverton, Maryland, Macro International, Inc., 1995), table 4.2.

NOTE: Dotted lines show trends in eight countries with comparable surveys.

surveys of knowledgeable respondents conducted by Mauldin and Ross, and others (Mauldin and Ross, 1991; Mauldin and Lapham, 1985; Mauldin, Berelson and Sykes, 1978; Lapham and Mauldin, 1972). The surveys use a standard questionnaire to arrive at ratings of a variety of aspects of family planning policy and programme performance. The ratings of method availability and accessibility are meant to reflect not only the physical availability of family planning outlets, but also the cost and difficulty of obtaining services (see note to table 34). While the ratings of method availability from this source should be regarded as approximate, it has the advantage of providing an overview for nearly the entire population of developing countries, using a comparable methodology across countries and over time. The latest such survey was conducted in 1994 and advance data were made available for the present report.

In 1994, condoms were estimated to be readily available to two thirds of the population of the less developed regions (table 34). Pills, female sterilization and IUDs were estimated to be nearly as widely available (to 61-64 per cent of the population), and male sterilization was estimated to be available to slightly under half the population. The availability of safe abortion was also rated and was estimated to be slightly greater than that of male sterilization.

The estimated availability of all types of contraception varies greatly by region, as does the relative availability

TABLE 34. RATINGS OF ACCESS TO CONTRACEPTION AND SAFE ABORTION SERVICES, 1994

Region	Number of countries	Percentage of the population with ready and easy access to: Contraceptive methods: Sterilization: Female	Sterilization: Male	Intrauterine device	Pill	Condom	Safe abortion
Less developed regions[a]	93	61	47	61	64	66	54
Africa	35	17	9	33	54	51	18
Northern Africa	5	11	5	47	80	45	15
Other Africa	30	18	10	28	46	53	20
Asia	33	69	57	68	64	69	62
Eastern Asia	5	88	71	89	72	71	90
South-central Asia	9	34	34	59	61	61	28
South-eastern Asia	10	66	55	51	55	71	48
Western Asia	9	28	8	59	74	63	36
Latin America and the Caribbean	24	64	35	52	78	65	43

Source: Tabulated from data provided by W. Parker Mauldin and John Ross.

NOTE: The percentage of the population for which each method was readily and easily accessible was scored on a scale ranging from 0 per cent to 80+ per cent. For countries assigned the maximum score for a particular method, it has been assumed here that 90 per cent of the population had easy access to the method. "Ready and easy access" means that the recipient needs to spend no more than an average of two hours per month on obtaining contraceptive supplies and services, and that the cost of contraceptive supplies is not burdensome: a one-month supply of contraceptives should, to meet the criterion, cost less than 1 per cent of a month's wages. For sterilization, the criterion implies that medically adequate voluntary sterilization services are legally and openly available and readily accessible.

To obtain regional averages, countries have been weighted by population size. Countries for which ratings were available contain 96 per cent of the population of the less developed regions.

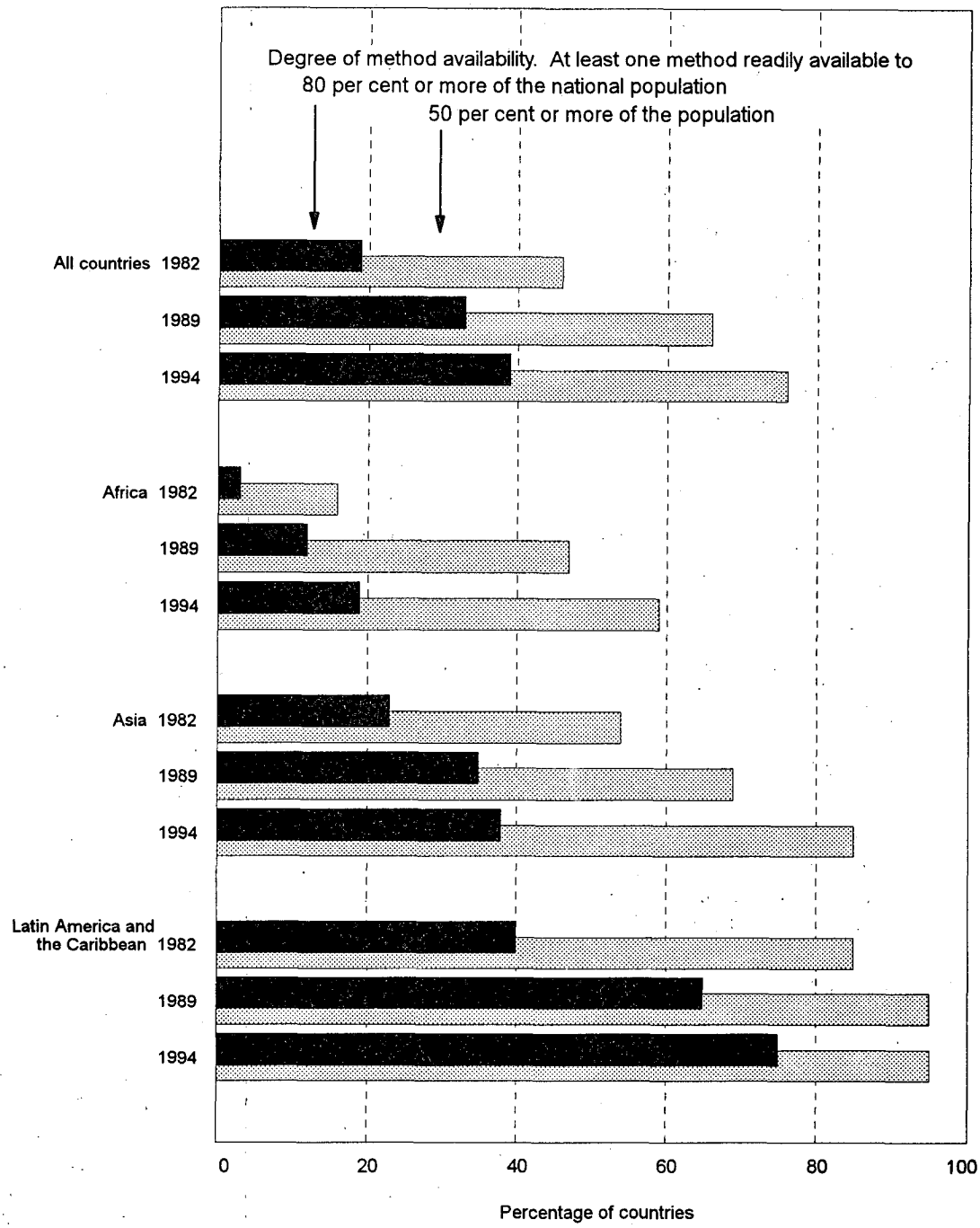
[a]Including one country in Oceania.

of the different methods within regions. For instance, sterilization, especially male sterilization, is less widely available than other methods in most of Africa, Western Asia and, to a lesser degree, South-central Asia, while in other parts of Asia and Latin America and the Caribbean female sterilization is approximately as readily available as other methods. In Latin America and the Caribbean and in Africa as a whole, female sterilization is estimated to be available to nearly twice as many people as is male sterilization, while in Asia (except Western Asia) the difference between these two methods is smaller. Method availability is poorest in sub-Saharan Africa. Condoms are the most widely available method there, yet they are estimated to be available to only slightly more than half of the population.

Comparison of the method-availability ratings in 1982, 1989 and 1994 indicates strong and consistent increases in availability of contraception between the former two dates, but a more equivocal pattern of change between 1989 and 1994. Figure 14 shows regional trends in the percentage of countries in which at least one type of contraception was readily available to 50 per cent of the population (light-shaded bars), and the percentage where a method was available to at least 80 per cent of the population (dark-shaded bars). Figure 15 shows trends since 1982 in the availability of each contraceptive method.

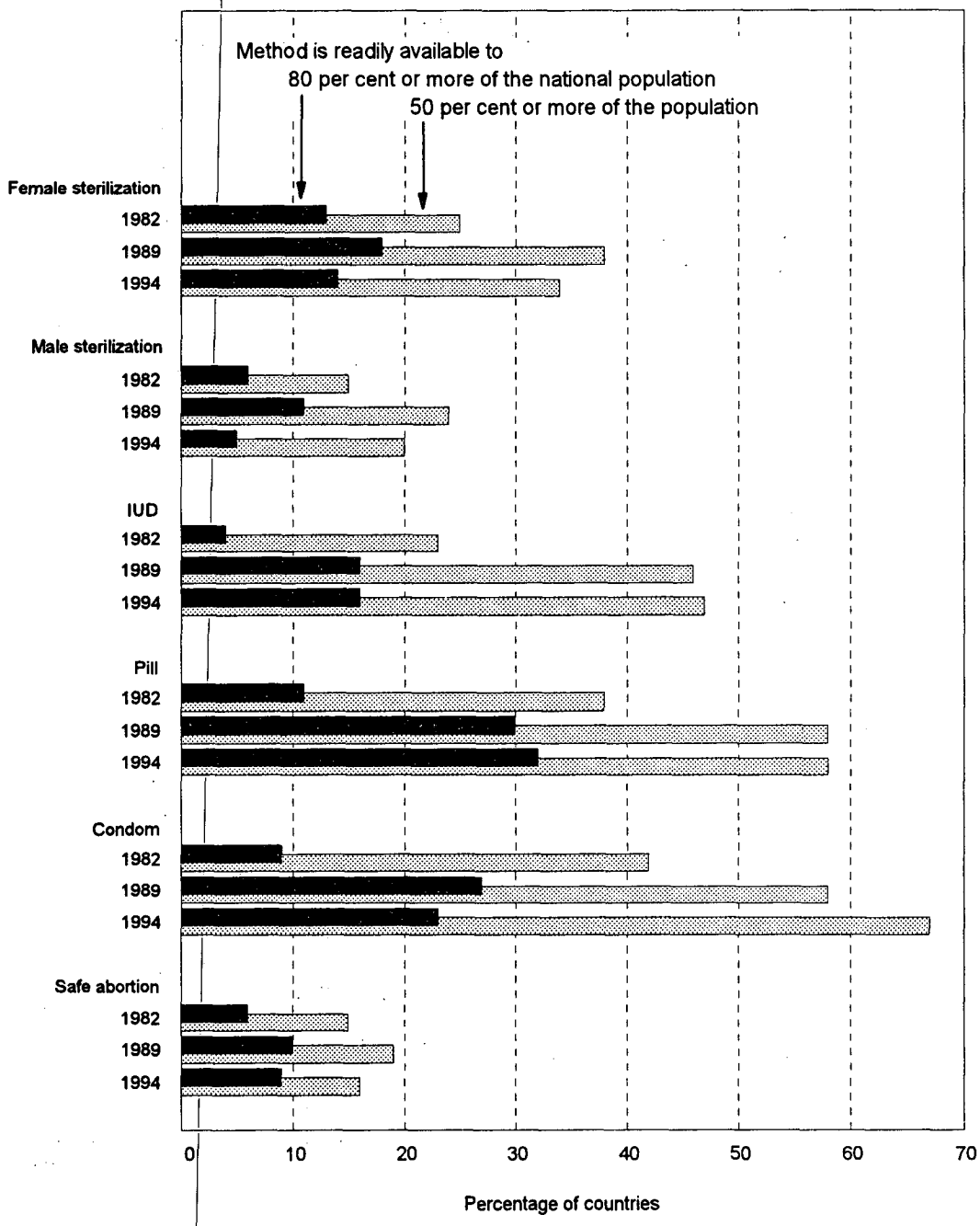
The number of countries where at least one method met the moderate-availability criterion (50 per cent or more of the population) and the high-availability criterion (80 per cent or more) grew substantially in all regions between 1982 and 1989, and increased further by 1994 (figure 14). At the same time, for most individual methods, the ratings indicated little increase between 1989 and 1994 in the number of countries achieving moderate or high availability levels (figure 15). The number of countries where the condom was estimated to be moderately widely available continued to grow, but for other methods there was little change or even a slight decline. It is unclear at this

Figure 14. Availability of at least one type of modern contraception in developing countries



Source: Tabulated from data for 1994 provided by W. Parker Mauldin and John Ross, and the Population Council data bank.
NOTE: Data pertain to male and female sterilization, oral pills, IUD and condom.

Figure 15. Availability of specific modern contraceptive methods and safe abortion services in developing countries



Source: Tabulated from data for 1994 provided by W. Parker Mauldin and John Ross, and the Population Council data bank.

point how accurate a guide these ratings are to objective changes in availability and accessibility, and it would be unwarranted to try to interpret small differences between ratings at different times. The ratings do show that, in the judgement of informed observers familiar with individual country programmes, by the middle of the 1990s in only about 40 per cent of developing countries was any type of contraception readily and easily available to at least 80 per cent of the population. Despite undoubted progress over the past decade, the goal of making a wide choice of methods universally available is still far from being achieved.

Ratings of access to services were produced by the Population Crisis Committee[11] in 1992 for most of the developed countries with populations of 1 million or more. The ratings of method availability in the developed countries indicate good access to a range of modern methods in most of Northern, Southern and Western Europe, Northern America, and Australia and New Zealand but limited access to some or all methods in Japan, the Russian Federation, most of Eastern Europe and a few countries in other parts of Europe. The condom is the method that is widely available in the most countries, followed by the pill and IUD. The availability of contraceptive sterilization was considered to be limited (under 50 per cent of the maximum score) in nearly half of the countries.

F. CURRENT CONTRACEPTIVE USE AND NEED IN DIFFERENT POPULATION GROUPS

1. *Contraceptive use and needs, by women's marital status*[12]

Societies vary greatly in their marriage customs and in the degree to which sexual activity and childbearing are limited to formalized marriages. For the world as a whole, approximately two thirds of women of reproductive age are currently married or in a consensual union, as reported in censuses and surveys (United Nations, 1996). Until recently, most surveys that inquired about contraceptive use directed those questions only to the married population. It is only since the mid-1980s that many national surveys have begun to inquire about current contraceptive practice and need for services among the unmarried.

Table 35 shows the percentage of women using contraception according to marital status, for countries that posed the questions about current contraceptive practice to all women, not just married women. As noted earlier, the concept of "marriage" used in the surveys is in many cases broader than formal or legal marriage, although these definitions are never so broad as to encompass all sexual activity. The proportions of women of reproductive age who are reported as married range from only 39 per cent in Botswana to 92 per cent in Mali.

The level of contraceptive use among all women of reproductive age is usually lower than among married women. This is to be expected because, in most countries, a high proportion of the unmarried are not sexually active. Surprisingly, there are several exceptions, where the reported level of use is higher among the unmarried than those in a union. Countries showing this pattern are all located in sub-Saharan Africa and have a low level of contraceptive practice. There are also some sub-Saharan African countries, notably Burundi and neighbouring Rwanda, where the level of use among the unmarried is low, both absolutely and in relation to the level of use among women in a union. In Latin America and the Caribbean, contraceptive prevalence among the unmarried (those not currently in union, as defined in the surveys) ranges from 2 per cent in Nicaragua to 21 per cent in Costa Rica. Prevalence levels for unmarried women are less than one fifth the level for the married in most of the countries of the region. In the Philippines, the sole Asian country with such data, only 1 per cent of unmarried women report current contraceptive use. The developed countries have, in absolute terms, the highest levels of use for unmarried women. Prevalence of use is above 50 per cent, except in Romania (6 per cent) and the Czech Republic and Hungary (39 per cent), and ranges up to 75 per cent in Belgium. In most countries, these levels are roughly 60-90 per cent as high as those for married women in the same country. To some extent, these contrasting patterns may be due to differences in the way "marriage" was defined in particular surveys and/or differences in the adequacy with which the same sets of questions were able to capture the differing social arrangements for union formation and childbearing.

Among women who are currently not in a union, those who were formerly married usually have higher levels of use than those who have never been married. The difference between these two groups is especially large in Latin America and the Caribbean.

TABLE 35. PERCENTAGE OF WOMEN OF REPRODUCTIVE AGE USING CONTRACEPTION, BY MARITAL STATUS, AND PERCENTAGE OF CONTRACEPTIVE USERS AND OF ALL WOMEN OF REPRODUCTIVE AGE WHO ARE IN A MARITAL UNION, DEVELOPING AND DEVELOPED COUNTRIES

Major area, or region and country	Year	Age range	Percentage currently using contraception					Percentage in a union	
				Not currently in union					
			In union	Total	Never in union	Formerly in union	All women	All women	Current contraceptive users
A. Less developed regions									
Africa									
Botswana	1988	15-49	33	28	27	30	30	39	43
Burkina Faso	1993	15-49	8	7	..	..	8	84	86
Burundi	1987	15-49	9	2	1	6	6	67	91
Cameroon	1991	15-49	16	30	..	..	20	74	61
Central African Republic	1994	15-49	15	13	..	..	14	69	73
Ghana	1993	15-49	20	16	..	..	19	70	75
Kenya	1993	15-49	33	15			26	61	78
Lesotho	1991/92	15-49	..	..	..	..	23	..	..
Liberia	1986	15-49	6	12	13	13	8	68	51
Madagascar	1992	15-49	17	9	..	..	14	59	75
Malawi	1992	15-49	13	4	..	..	10	72	89
Mali	1987	15-49	5	3	1	7	5	92	94
Mauritius	1991	15-44	75	1	0	5	55	74	99
Namibia	1992	15-49	29	19	..	..	23	42	52
Niger	1992	15-49	4	4	..	..	4	86	86
Nigeria	1990	15-49	6	13	15	5	8	78	63
Réunion	1990	15-49	67[a]	..	..	..	54	..	..
Rwanda	1992	15-49	21	4	..	..	14	58	89
Senegal	1992/93	15-49	7	6	..	..	7	71	74
Swaziland	1988	15-49	20	7	..	..	17	75	89
Togo	1988	15-49	12[b]	25[b]	26[b]	17[b]	16[b]	73	57
United Republic of Tanzania	1994	15-49	20	12	..	..	18	69	79
Uganda	1988/89	15-49	5	7	5	9	6	67	60
Zambia	1992	15-49	15	5	..	..	12	63	83
Zaire	1991	15-49	8	5	7	..	7	65	71
Zimbabwe	1994	15-49	48	14	..	..	35	62	85
Latin America and the Caribbean									
Antigua	1981	15-44	39[a]	..	..	..	30	..	..
Bahamas	1988	15-44	62[a]	..	..	..	45	..	..
Barbados	1980/81	15-49	46[a]	10	..	..	37	73	92
Belize	1991	15-44	47[a]	..	..	..	34	..	..
Bolivia	1994	15-49	45	5	..	..	30	62	93
Brazil	1986	15-44	66	12	6	39	44	59	89
Colombia	1990	15-49	66	11	..	..	40	52	87
Costa Rica	1992/93	15-49	75	21	..	..	53	61	86
Dominica	1981	15-44	49	..	..	..	36	..	..
Dominican Republic	1991	15-49	56	12	..	..	37	56	85
Ecuador	1989	15-49	53	5	..	..	34	60	94
El Salvador	1993	15-44	53	12	2	28	34	55	86
Guadeloupe	1976	15-44	44[a]	..	..	..	30	..	..
Guatemala	1987	15-44	23	3	0	12	16	65	94
Haiti	1994	15-49	18[a]	4	..	..	12	58	85
Honduras	1991/92	15-44	47	7	2	19	30	57	90
Jamaica	1993	15-44	62[a]	17	..	..	48	..	..
Martinique	1976	15-44	51[a]	..	..	..	36	..	..
Mexico	1987	15-49	53	5	1	23	34	61	95
Nicaragua	1992	15-49	49	2	..	..	34	68	98
Paraguay	1990	15-49	48	8	..	..	33	61	91
Peru	1991/92	15-49	59	7	..	..	36	55	94
Saint Lucia	1981	15-44	43[a]	..	..	..	35	..	..
Saint Vincent and the Grenadines	1981	15-44	42[a]	..	..	..	32	..	..
Trinidad and Tobago	1987	15-49	53[a]	4	1	12	37	69	97
Asia									
Philippines	1993	15-49	40	1	..	..	24	60	99

TABLE 35 (*continued*)

Major area, or region and country	Year	Age range	Percentage currently using contraception					Percentage in a union	
				Not currently in union					
			In union	Total	Never in union	Formerly in union	All women	All women	Current contra-ceptive users
B. More developed regions									
Australia	1986	20-49	76	56	..	..	72	78	83
Belgium[d]	1991	20-40	79	75	..	..	79	82	83
Canada	1984	18-49	73	61	..	..	68	62	66
Czech Republic	1993	15-44	69[e]	39	38	46	59	72	93
Denmark	1988	15-44	78[f]	..	..	..	71	..	..
France	1994	20-44	75	52	..	..	69	61	66
Germany	1992	20-39	75	68	..	..	72	67	70
Hungary	1993	15-44	73	39	..	..	64	74	84
Netherlands	1993	18-42	80	55	..	..	74	81	88
Romania	1993	15-44	57[g]	6	5	14	41	67	96
Slovakia	1991	15-44	74[f]	..	..	..	67	..	..
United Kingdom of Great Britain and Northern Ireland	1993	16-49	82	52	52	53	72	65	75
United States of America	1990	15-44	71	47	43	57	59	52	62

Sources: *Levels and Trends of Contraceptive Use as Assessed in 1994 Population Studies, No. 100* (United Nations, publication, Sales No. E.96.XIII.13), and files of the Population Division of the United Nations Secretariat.

NOTE: In most Latin American and African surveys, women living with a man are grouped with those who are formally married; exceptions are noted separately. In the more developed regions, data usually refer to those currently in a formal marriage, excluding those who are separated; exceptions are noted separately.

[a]Including visiting unions.
[b]Excluding prolonged abstinence.
[c]Now Democratic Republic of the Congo.
[d]Flemish population.
[e]Married or cohabiting
[f]Sexually active women.
[g]Including consensual unions.

These data show that an exclusive focus on married women leaves out a significant proportion of contraceptive users in most of the countries included in table 35. In sub-Saharan Africa and in the developed countries, women not in a union make up about one fourth of all contraceptive users, on average, and in Latin America and the Caribbean, nearly 10 per cent (United Nations, 1996). In Africa, especially, there is a wide range of values. At the upper extreme, over half of contraceptive users are unmarried in Botswana, about half in Liberia and Namibia, and over one third in Cameroon, Nigeria, Togo and Uganda. There is a wide range in the developed countries, too, with under 10 per cent of contraceptive use occurring outside unions in the Czech Republic and Romania, but with from 32 to 38 per cent of such use occurring outside unions in Canada, the Netherlands and the United States.

Assessing the magnitude of the current need for family planning among the general population of unmarried women requires, at a minimum, information about sexual activity and desires for pregnancy, as well as current contraceptive practice. Westoff and Bankole (1995) have presented estimates of need and unmet need for 19 African countries that participated in the Demographic and Health Surveys (DHS) programme. In most cases, a lower percentage of unmarried than of married women currently need family planning, mainly because many of the unmarried women are not sexually active. An average of 20 per cent of single (never-in-union) women and 31 per cent of formerly married women were estimated to have a need for contraception. An average of 9 per cent of the single women and 16 per cent of the formerly married currently had an unmet need, as compared with 28 per cent of married women in the same countries. Lower proportions of teenaged single women than of older women had a current need, because fewer of the youngest women were sexually active. However, among those who were at risk for an unplanned pregnancy, a lower percentage of unmarried teenagers than of older women were using contraception: the average proportion using contraception among those "in need" was 40 per cent for single women aged 15-19 as compared with 55 per cent for those aged 20-24.

A United Nations study that reviewed DHS data for 10 African and 9 Latin American and the Caribbean countries (United Nations, 1996) also pointed to substantial levels of need for contraception among unmarried women. Although there was a wide range of intraregional variation and overlap between values observed in the two regions, there were some general differences between the two regional groups:

(*a*) The proportions of unmarried women that were sexually active tended to be higher in Africa than in Latin America and the Caribbean countries. In the African countries considered in the study, an average of approximately 25 per cent of currently unmarried women reported having sexual relations within the month preceding the survey, as compared with 5 per cent in Latin America and the Caribbean. In most cases formerly married women were more likely than never-married women to be currently sexually active;

(*b*) Substantial majorities of sexually active unmarried women wished to avoid pregnancy—on average, nearly two thirds in Africa and nearly three fourths in Latin American and the Caribbean. This implies that there is a high level of need for contraceptive information and services in that group. At the same time, it is worth noting that there is a significant minority that would welcome or at least not mind a pregnancy;

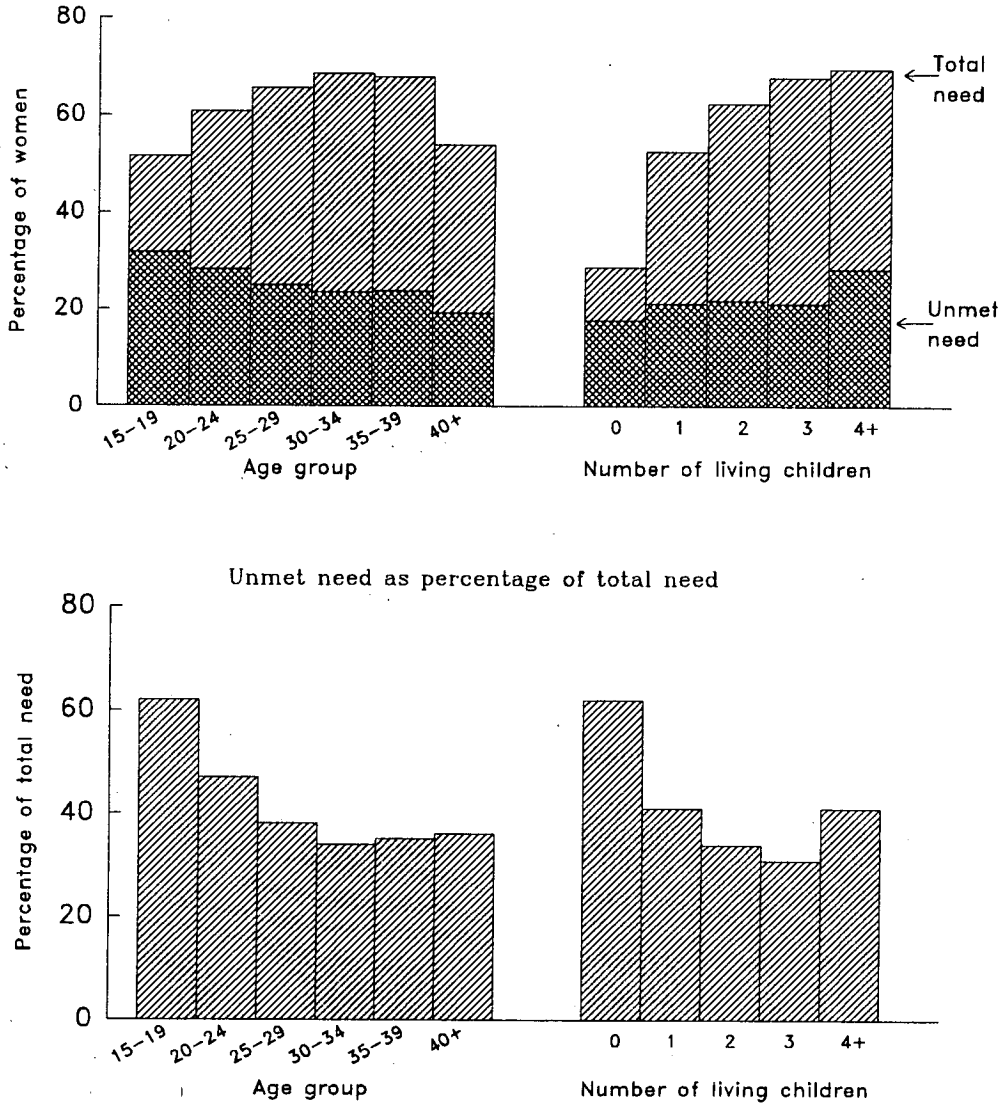
(*c*) In most African countries, sexually active unmarried women were more likely than their married counterparts to be using contraception, while in Latin America and the Caribbean such was usually not the case. This is likely to be due, at least in part, to differences in fertility desires. In the African countries, unmarried sexually active women were usually less likely than their married counterparts to say that they would be happy or would not mind becoming pregnant in the next few weeks. In Latin America and the Caribbean, unmarried women were often more likely than those married to say they would welcome a pregnancy. For both the married and the unmarried sexually active women, percentages wanting to avoid a pregnancy tended to be higher in Latin America and the Caribbean than in Africa—again, with some exceptions.

2. *Age*

The level of current contraceptive use is usually highest among women who are in the middle of the period of the reproductive years, roughly from age 25 to age 40. Estimates of current need for family planning show a similar age pattern although at a higher level, the difference reflecting the substantial levels of unmet need (figure 16). Among the youngest married women, the need for contraception is somewhat lower than average because many women want to have a child soon, and at the oldest ages need is reduced because many women are infecund.[13] However, even in age group 15-19, which has the lowest level of total need, over half of the married women are estimated to need contraception. At ages 30-39, over two thirds of the women, on average, are estimated to have a need.

The percentage of married women with an unmet need does not differ greatly between age groups but is, on average, higher at younger ages. Even though the youngest women are likely to want more children eventually, many of them would prefer to delay the next birth. At the older ages, most of the women with an unmet need already have at least as many children as they want. Except in sub-Saharan Africa, the "limiting" motive usually predominates at ages 30-34 or above, and in some cases at ages 25-29 as well, especially in Latin America (Westoff and Ochoa, 1991; Westoff and Bankole, 1995). Expressed as a percentage of total need, unmet need is clearly higher among the young. The reasons for this are not clear but probably include a combination of factors: motivation may be weaker when birth-spacing rather than limitation is the goal; young women may be less knowledgeable about methods and services; young women may face greater difficulties in gaining access to family planning services or may be too intimidated to approach service providers. The choice of suitable methods also is generally more restricted for younger women wanting to space births. Older women are likely to seek a long-acting method and sterilization is the predominant method among older women in many countries. Pill use, on the other hand, is much more common among young women (United Nations, 1987). Many women wanting to space births may be uncertain about the best time to start using a method—the risk of conception is low in the few months immediately following a birth, particularly if the baby is breastfed. In addition, certain pill formulations are not advised for use by breastfeeding women during the first few months after the birth. Such considerations may lead some women to delay adopting a method beyond the immediate post-partum period when risk of conception is low.

Figure 16. Unmet need and total need for contraception, by age and number of children: averages for 23 developing countries



Source: Charles F. Westoff and Luis Hernando Ochoa, *Unmet Need and the Demand for Family Planning*, Demographic and Health Surveys Comparative Studies, No. 5 (Columbia, Maryland, Institute for Resource Development/Macro International, Inc., 1991).

3. *Family size*

Levels of contraceptive use and total need are relatively low for childless married women, since in most developing countries it is not common to want to delay the start of childbearing after marriage. Levels of both need and use increase sharply after a child is born. The estimated level of unmet need does not vary much with family size. However, unmet need makes up a distinctly higher proportion of total need among women with no children; that proportion tends to decline modestly with increasing family size up to a point, but is slightly

TABLE 36. TRENDS IN CONTRACEPTIVE PREVALENCE, BY TYPE OF PLACE OF RESIDENCE AND NUMBER OF YEARS OF EDUCATION, FOR CURRENTLY MARRIED WOMEN

(Percentage)

Region and country	Year	Total	Type of place of residence			Years of education completed					
			Rural	Urban	Urban minus rural[a]	None	1-3	4-6	7-9	10+	10+ minus none[a]
Africa											
Cameroon	1978	2	2	5	4	1	3	4	11	25	24
	1991	16	11	25	14	5	11	19	36	53	48
Egypt	1980	24	12	40	28	16	26	32	52	55	39
	1988/89	38	25	52	27	28	40	51	52	55	27
	1992	47	38	57	19	38	48	59	53	58	20
Ghana	1979/80	10	8	14	6	6	12	11	12	19	13
	1988	13	10	20	10	9	9	14	15	21	12
	1993	20	15	31	15	8	22	21	24	36	28
Kenya	1977/78	7	6	12	6	4	6	8	12	18	14
	1988/89	27	26	31	4	18	22	28	31	45	26
	1993	33	31	43	13	20	22	30	37	54	34
Morocco	1980	20	10	37	27	16	36	53	54	59	43
	1987	36	25	52	27	31	52	60	63	69	38
	1992	42	32	55	23	36	55	59	68	65	29
Nigeria	1981/82	5	5	5	1	4	5	8	14	13	9
	1990	6	4	15	11	2	9	10	16	27	25
Senegal	1978	4	4	4	0	3	6	8	23	18	15
	1986	11	10	14	4	10	8	19	23	41	31
	1992/93	8	3	16	13	4	15	21	25	45	41
Tunisia	1978	31	20	44	23	27	42	41	72	56	29
	1988	50	35	61	26	42	43	61	64	69	26
United Republic of Tanzania	1991	11	8	18	9	4	9	15	15	46	42
	1994	20	17	33	16	12	13	25	25	55	43
Asia											
Indonesia	1976[b]	26	26	29	4	22	29	32	39	51	29
	1987	48	45	54	9	33	45	51	60	67	34
	1991	50	47	56	9	37	47	53	57	62	25
Jordan	1976	25	8	33	24	14	28	31	35	53	39
	1990	40	39	46	7	32	38	44	42	43	11
Pakistan	1975	5	3	12	9	4	11	10	19	25	21
	1990/91	12	6	26	20	8	17	19	29	39	31
Philippines	1978	36	31	47	17	9	22	34	42	51	42
	1993	40	37	43	6	11	22	36	43	46	35
Sri Lanka	1975	32	30	38	8	19	26	33	38	46	27
	1987	62	61	65	4	54	62	65	62	61	7
Thailand	1975	33	31	46	15	26	30	34	36	47	21
	1987	66	65	68	3	56	59	67	67	66	11
Turkey	1978	38	27	49	22	27	40	49	66	65	38
	1993	63	56	66	10	48	60	67	72	74	26

TABLE 36 *(continued)*

Region and country	Year	Total	Type of place of residence			Years of education completed					
			Rural	Urban	Urban minus rural[a]	None	1-3	4-6	7-9	10+	10+ minus none[a]
Latin America and the Caribbean											
Bolivia	1989	30	19	39	20	12	23	31	43	53	41
	1994	45	31	55	24	23	38	42	54	67	44
Colombia	1976	43	27	52	25	22	34	51	64	67	45
	1986	65	54	70	17	53	61	65	73	73	20
	1990	66	59	69	10	51	63	64	68	75	24
Dominican Republic	1975	32	23	41	18	17	26	37	46	55	37
	1986	50	46	52	6	38	47	51	49	57	19
	1991	56	50	60	10	42	52	58	53	64	22
Ecuador	1979	34	22	47	25	12	21	36	49	59	46
	1987	44	33	53	21	19	37	43	50	61	43
Mexico	1976	30	14	42	28	13	23	37	55	59	47
	1987	53	33	62	29	25	44	58	70	69	44
Paraguay	1979	36	27	49	22	20	24	39	54	56	36
	1990	48	39	57	18	27	36	46	58	65	37
Peru	1977/78	31	11	43	32	12	25	43	51	56	44
	1986	46	24	59	35	19	33	46	60	67	47
	1991/92	59	41	66	25	35	46	56	60	72	37
Trinidad and Tobago	1977	52	50	52	2	30	43	44	53	59	30
	1987	53	52	54	2	31	42	49	51	58	26

Source: United Nations, *World Contraceptive-Use Data Diskettes, 1991 User's Manual* (ST/ESA/SER.R/120); and special tabulations of DHS data provided by Macro International, Inc.

[a]Differences calculated before rounding.

[b]For Java and Bali.

higher among those with large families than among those with 2-3 children (figure 16).

4. *Type of place of residence and education*

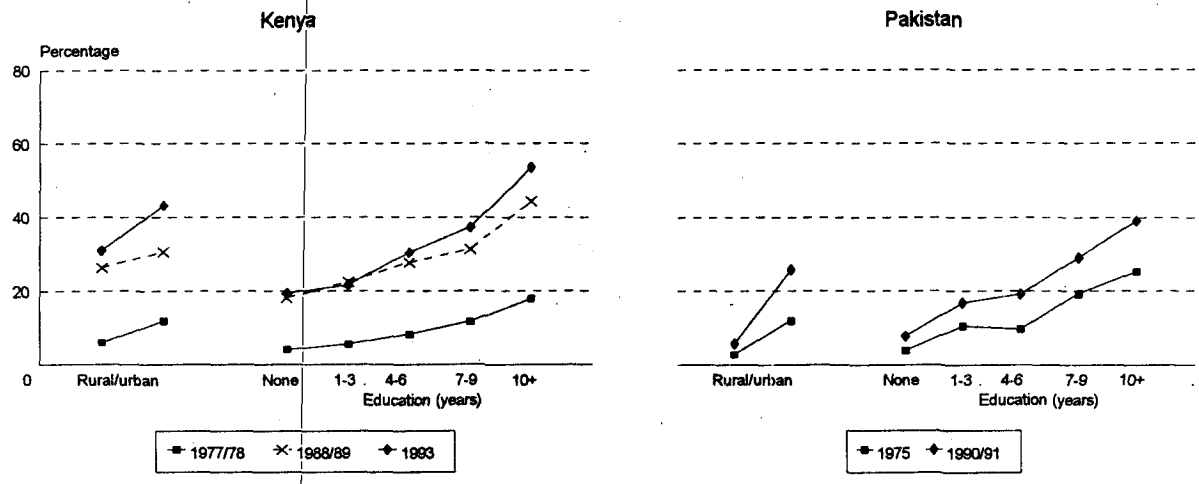
In most developing countries there are large differences in levels of contraceptive use between urban and rural areas and between more-educated and less-educated women. Table 36 shows these differences for 24 countries where trend information is available. At the most recent date shown, the level of current contraceptive use was, on average, 15 percentage points higher in urban than in rural areas, and 31 points higher among women with 10 or more years of education than among those with zero years completed. In most cases, even a few years of schooling make a difference for contraceptive use: the level of use averages 10 percentage points higher among women with 1-3 years of education than among those with none.

Over the period between the earliest and the most recent surveys included in table 36, the average size of the social differentials in contraceptive practice did not change very much, but this was the result of offsetting changes in different countries. Where contraceptive use had been low to start with, differentials usually widened, and the reverse was true in countries where use levels were already high at the earlier date in the urban areas or among highly educated women (see figure 17).

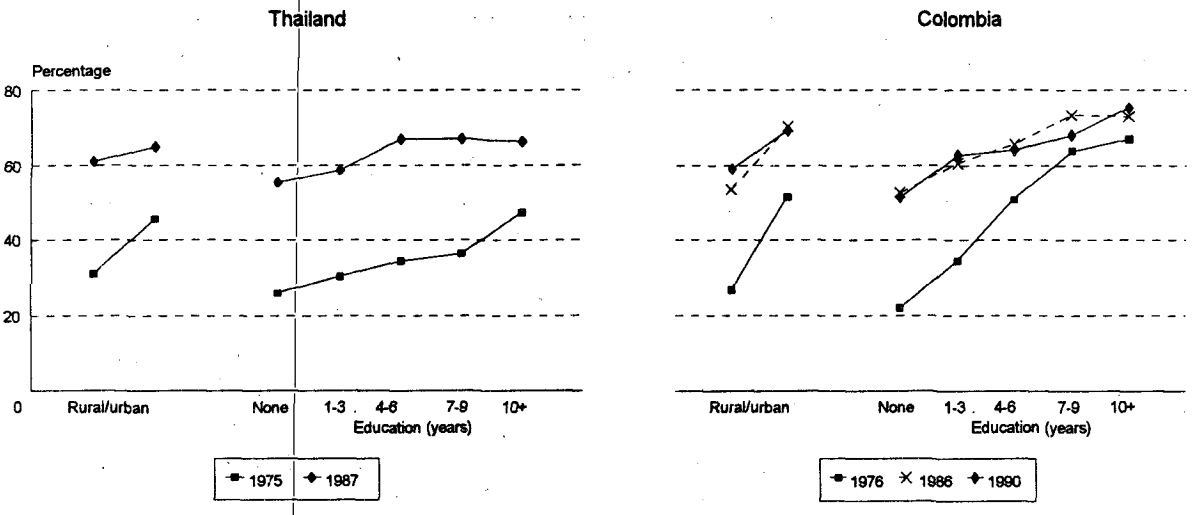
Uneducated women and rural women usually have the highest levels of unmet need for contraception, even though they have a lower total need: unmet plus met need (see figure 18). The lower levels of total need

Figure 17. Cases of widening and narrowing social differentials in current contraceptive use

In countries where prevalence was low during the 1970s, social differentials in contraceptive use have often widened...

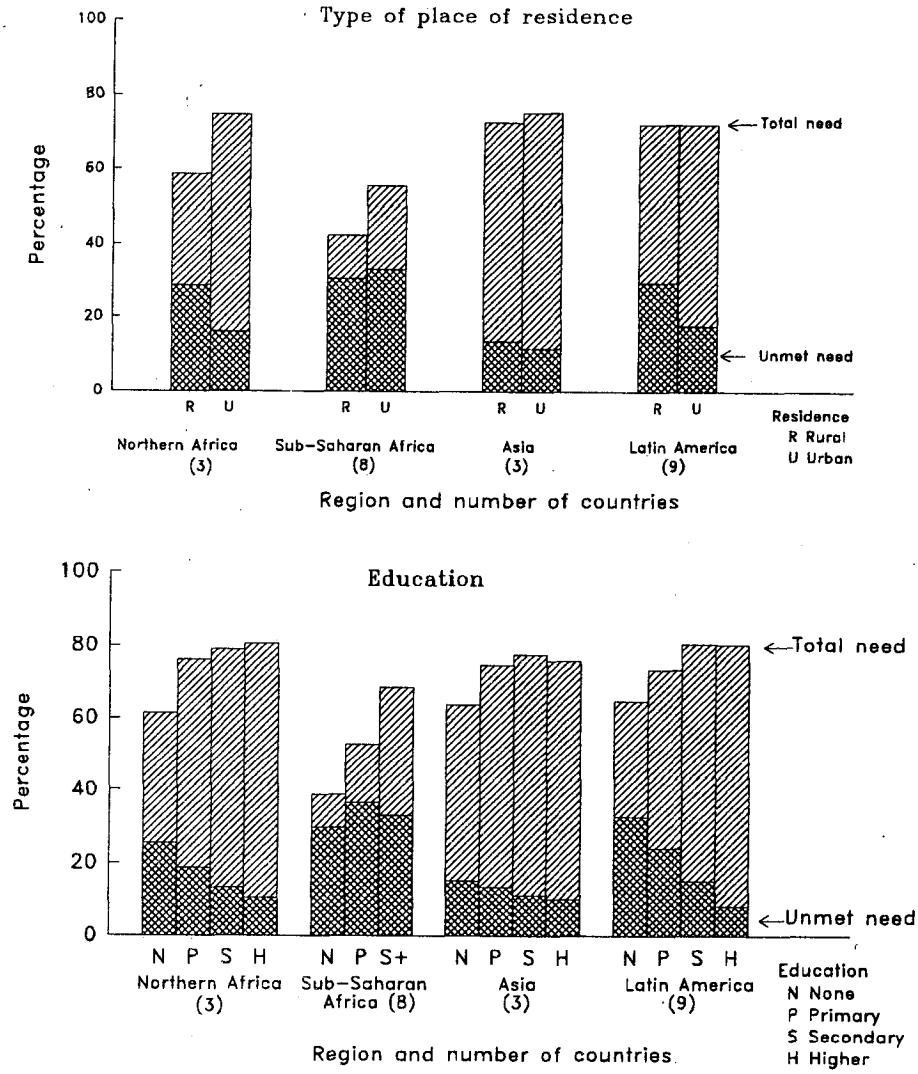


In countries with moderate prevalence levels in the 1970s, social differentials in contraceptive use have often narrowed...



Source: United Nations, *World Contraceptive-Use Data Diskettes, 1991: User's Manual* (ST/ESA/SER.R/120); and special tabulations of DHS data provided by Macro International, Inc.

Figure 18. Unmet need and total need for contraception, by rural or urban residence and level of education, for regions



Source: Charles F. Westoff and Luis Hernando Ochoa, *Unmet Need and the Demand for Family Planning*, Demographic and Health Surveys Comparative Studies, No. 5 (Columbia, Maryland, Institute for Resource Development/Macro International, Inc., 1991).

mainly reflect the larger numbers of children that rural and uneducated women want. However, in most cases so many more of the educated and urban women use contraception that the net effect is one where the latter have lower levels of unmet need. In the sub-Saharan African countries, the levels of unmet need tend to be roughly equally high in all groups, although the percentage of need that is currently satisfied is much lower among the uneducated and rural women. In most countries in Northern Africa, and Latin America and the Caribbean, the less educated and rural women have much higher levels of unmet need than their urban and well-educated counterparts.

5. *A comparison of men's and women's contraceptive practice*

Much of what is known about contraceptive practice is derived from surveys of women, but within the past few years, more fertility and family planning surveys

have included men. This trend is motivated partially by a recognition that reproductive behaviour cannot be adequately understood without asking men about their fertility and contraceptive knowledge, attitudes and behaviour, partially by related concerns about understanding and preventing transmission of sexually transmitted diseases, and partially by a recognition that, in the drive to extend family planning services to women, men's needs were relatively neglected.

Nearly half of the surveys of men that were available for review here were conducted in sub-Saharan Africa, although there are some samples of men from all major regions. Many of the surveys covered samples of men included as part of the DHS programme. The highlights presented below focus on a comparison of men's and women's reports of current contraceptive use and on how these gender differences vary according to marital status, as follows:

(*a*) In Asia, Latin America and the Caribbean, and Europe, married men's and married women's reports of current contraceptive use are usually not far apart, but in many sub-Saharan African countries men report substantially greater use of contraception. Considering only the direction, and not the magnitude of the male/female difference, men reported higher levels of contraceptive use in all of the sub-Saharan African countries with available data in contrast with under half of the countries in other regions. Although the high levels of polygyny in Africa complicate the comparison—because contraception might be used with one partner but not another—in most cases polygyny is unable to account for the overall male/female difference in reported levels of contraceptive use. In fact, monogamous married men are frequently more likely to be using contraception than those in polygynous unions (Ezeh, Seroussi and Raggers, forthcoming). The aggregate differences in reported levels of contraceptive use for husband-and-wife samples conceal a larger amount of disagreement at the individual level. Although such information was available for only a few of the surveys, it appears that couples disagree relatively more often about use of traditional methods, such as the calendar rhythm method and withdrawal, than about modern-method use;

(*b*) Where men report more contraceptive use, the difference between male and female reports is usually due mainly to greater use by men of condoms and rhythm (see figure 19). It is worth noting that the success of the rhythm method at preventing pregnancy is heavily dependent upon close adherence to rules for restricting intercourse to times of low conception risk. A number of recent surveys have tried to ascertain whether women using the rhythm method have a correct understanding of the time of greatest risk of conception within the menstrual cycle. It may be equally relevant to investigate men's knowledge in this regard;

(*c*) Male/female differences in levels of contraceptive use tend to be larger when the comparison is not restricted to those married than when married samples are compared. This may mainly reflect differences in proportions of unmarried men and women who are sexually active;

(*d*) Unmarried men usually report much higher levels of condom use than married men, even though the overall level of contraceptive practice is higher among those who are married. The condom is the only method for which use levels are usually higher for unmarried than for married men;

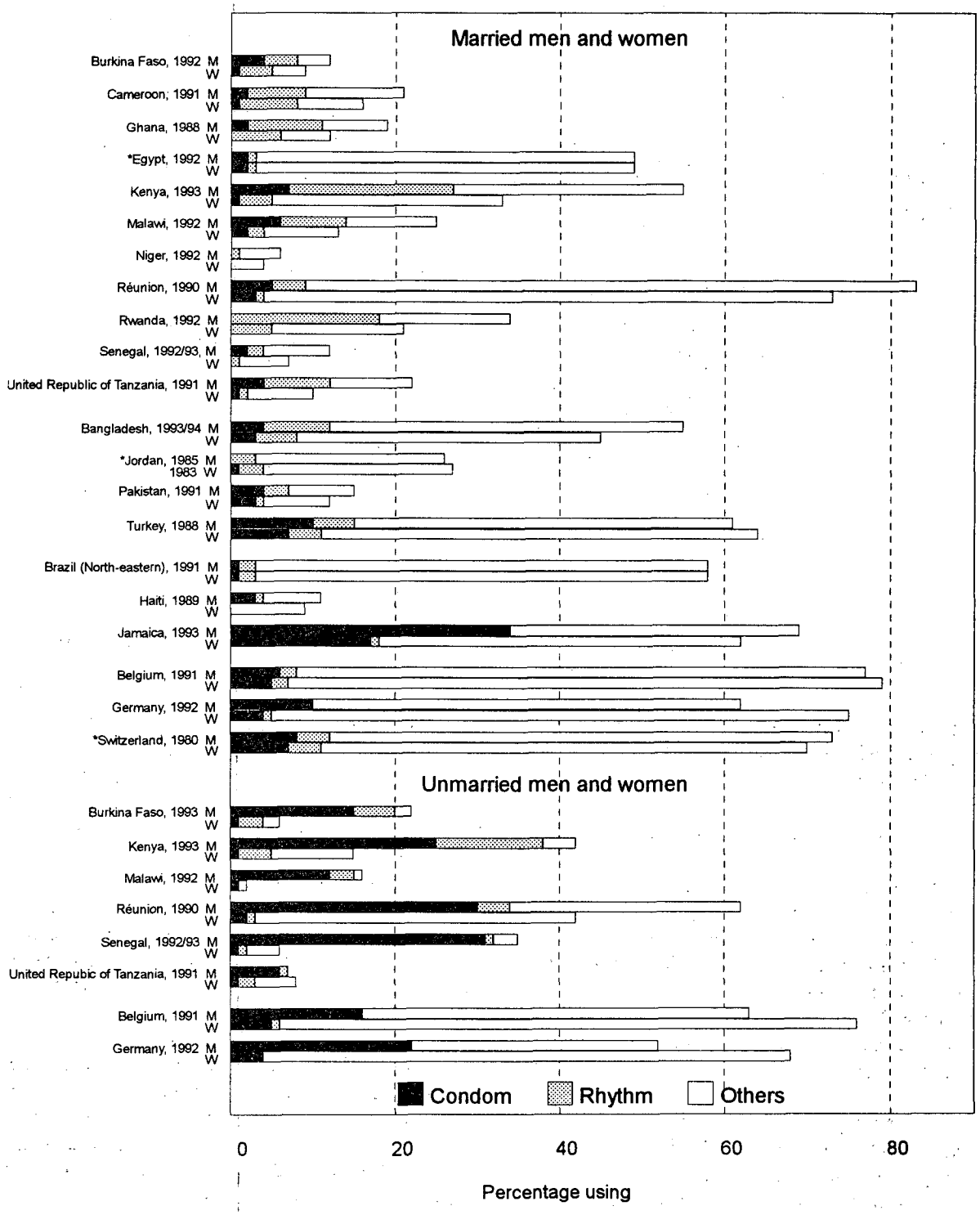
(*e*) It is not possible to say whether, in general, the reports of contraceptive practice by one sex are more accurate than those by the other. Differences in sample definition and in number of sexual partners are probably responsible for many differences in answers. However, differences in sample definition alone could not account for the widespread, and often large, gender differences in reported use of condoms and rhythm.

G. Users' perceptions of contraceptive methods and experience with methods

1. *Preferred future method*

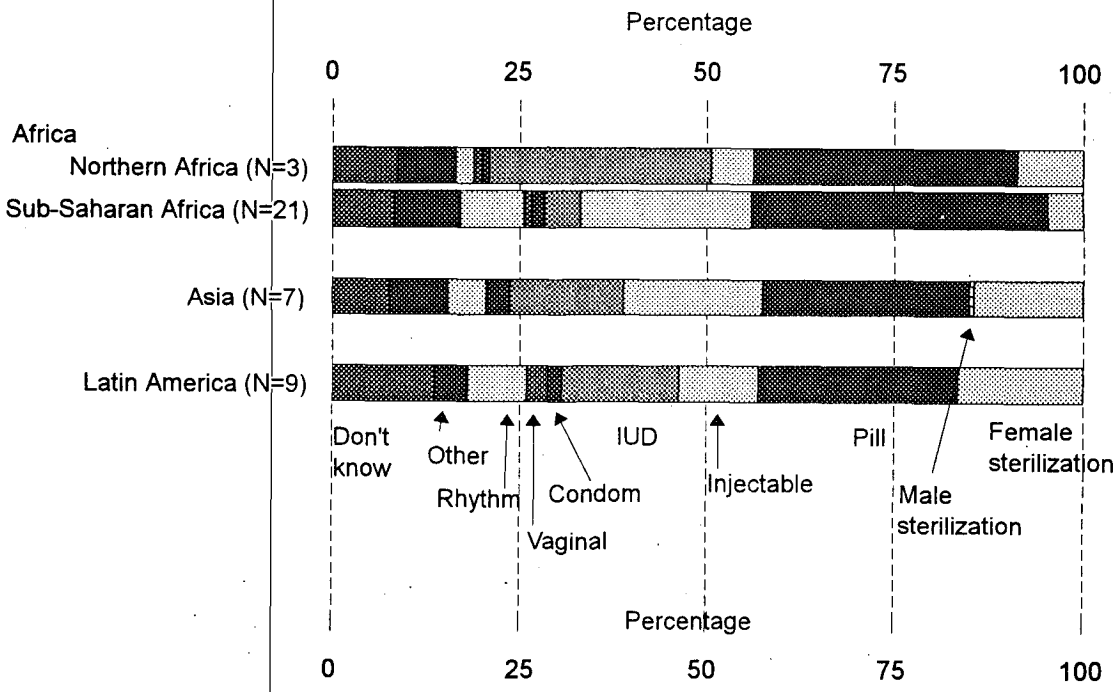
Many of the women who are not currently using contraception say they plan to use a method in the future. In a review of 40 surveys, the median percentage of married non-users intending to use a method within 12 months was 71 per cent, ranging from 11 per cent in Mali and 22-34 per cent in Burundi, Cameroon and Yemen, to over 80 per cent in 8 of the countries (Shah, forthcoming). Figure 20 presents a summary of methods preferred by those intending to use a method within the next 12 months. Modern methods predominate, as they do among current contraceptive users. Female sterilization, the pill, injectables and IUDs were the methods most often preferred. "Male" methods, especially male

Figure 19. Proportions of men and women currently using contraception



NOTE: "Married" samples usually include consensual unons.
An asterisk (*) denotes husband/wife pairs; and M = men, W = women.

Figure 20. Percentage distribution of non-users, by type of method preferred for use within the next 12 months



Source: Iqbal Shah, Perspectives on Methods of Fertility Regulation: Setting a Research Agenda (Geneva, World Health Organizaton, forthcoming).

NOTE: "N" denotes number of countries.

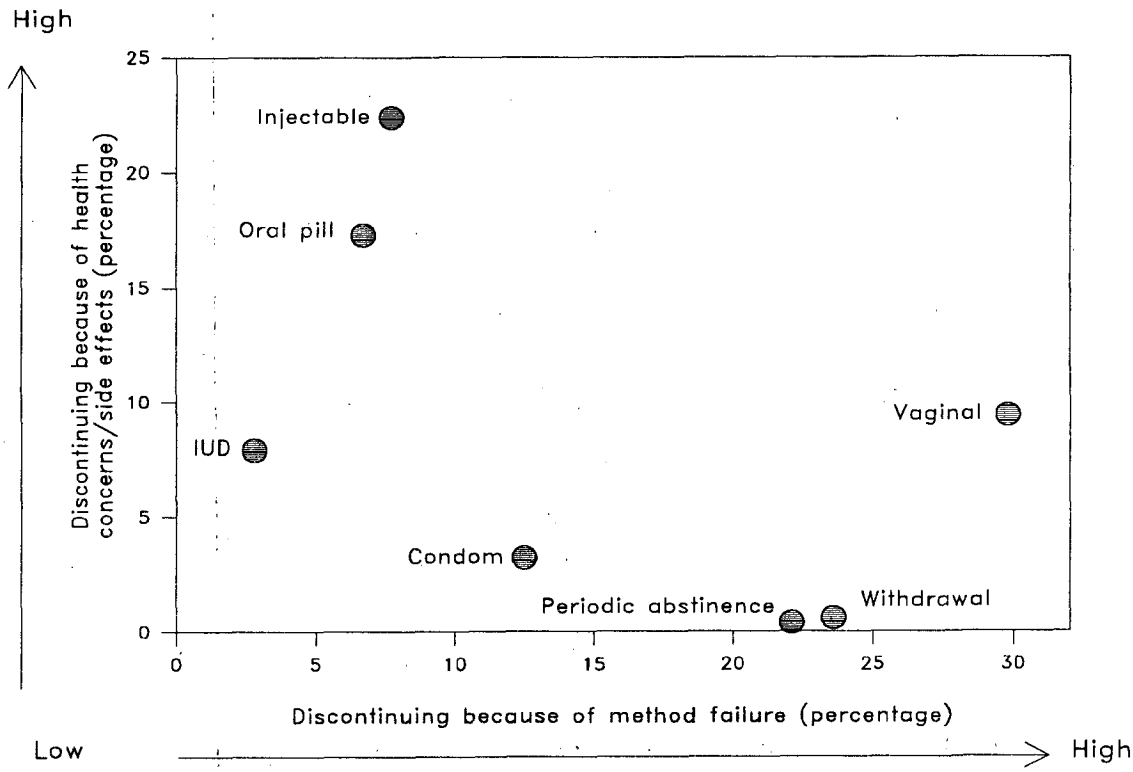
sterilization, were mentioned much less often, although this may partly reflect the circumstance that the question was posed to women about their own future use.

2. *Contraceptive discontinuation*

While some couples use a single contraceptive method successfully for many years, most are likely to switch from their first method at some point. Studies of contraceptive discontinuation show that within a year of the start of use, typically 40-60 per cent of women will have stopped using the pill; 15-30 per cent, IUDs; somewhat over half, the condom; and about 40-60 per cent, periodic abstinence (Ross and Frankenberg, 1993).

Reasons for stopping vary with the method used. In general, methods that are highly effective at preventing pregnancy have a high incidence of side effects, while methods with few side effects are more prone to fail (see figure 21). IUDs stand out as having a relatively low rate of discontinuation for both reasons. In addition, method use may stop because the method is found to be inconvenient or unsatisfactory in other ways, or because of changed personal circumstances, including the desire to get pregnant, for those using contraception in order to delay a birth. According to the studies summarized in figure 22, condoms stand out as having a high rate, and IUDs as having the lowest rate, of discontinuation for "other reasons". Figures 21 and 22 are based on studies of contraceptive practice in the general population, where failure rates tend to be higher than those found with the carefully selected and highly motivated groups that are often recruited for clinical studies. Studies involving the general population represent the experience of average users, not the considerably lower failure rates that, theoretically, can be achieved. On average, over 20 per cent of users of periodic abstinence (mainly calendar rhythm), withdrawal and vaginal methods became pregnant while using those methods, within a year of beginning use.

Figure 21. Contraceptive methods, by proportion discontinuing their use within 12 months because of method failure or health concerns



Source: Iqbal Shah, *Perspectives on Methods of Fertility Regulation: Setting a Research Agenda* (Geneva, World Health Organization, forthcoming), based on Demographic and Health Surveys data for 11 countries.

After a method is discontinued, users may either abandon use or switch to another method, if a suitable one is available. Studies that examined subsequent behaviour in north-east Brazil, Colombia, the Dominican Republic and Peru indicate that many users do not move immediately to another method and therefore face a significant risk of becoming pregnant. Within the month after discontinuation, on average, nearly 30 per cent of those who discontinued were pregnant (including desired pregnancies and those due to contraceptive failure), about 40 per cent were using another method, and approximately 30 per cent had abandoned use (Shah, forthcoming).

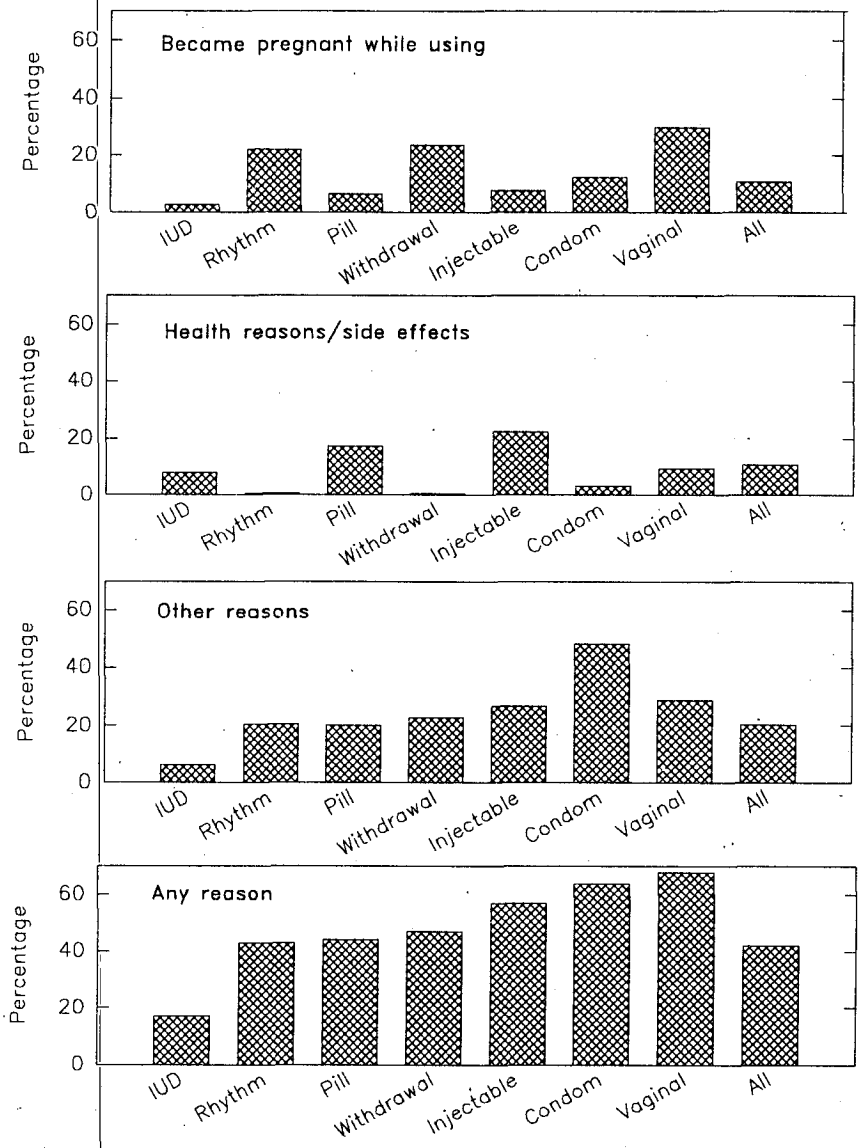
3. *Reasons for unmet need*

The measure of unmet need considered earlier, in table 33, merely represents the gap between stated desires to prevent or delay a birth and the actual use of contraception to achieve those goals. When women identified as having an unmet need are asked why they are not using contraception, several major reasons stand out. In the sub-Saharan African countries included in table 37, between 28 per cent in Kenya and 48 per cent in Uganda gave "lack of knowledge" as the principal reason. In Bolivia, over half of the women gave that response. Lack of knowledge appeared to be a considerably greater barrier than inaccessibility or cost (although lack of knowledge may refer, in part, to lack of knowledge of a place at which to obtain services).

A second major reason reported for non-use comprises health concerns. This reason tends to be relatively more important in countries where levels of use of modern methods are high and lack of knowledge is reported least.

Figure 22. Contraceptive discontinuation: cumulative proportion discontinuing by the twelfth month after the beginning of use, by method and reason

(Averages for 11 developing countries)



Source: Iqbal Shah, *Perspectives on Methods of Fertility Regulation: Setting a Research Agenda* (Geneva, World Health Organization, forthcoming), based on Demographic and Health Surveys data for 11 countries.

TABLE 37. PERCENTAGE DISTRIBUTION OF MARRIED WOMEN WITH UNMET NEED, BY PRINCIPAL REASON REPORTED FOR NON-USE OF CONTRACEPTIVES, 13 DEMOGRAPHIC AND HEALTH SURVEY COUNTRIES

Region and country	*Year*	*Lack of know-ledge*	*Lack of access/ difficult to get*	*Cost too high*	*Health concerns*	*Incon-venient to use*	*Husband dis-approves*	*Others dis-approve*	*Religion*	*Opposed to family planning*	*Fatal-ism*	*Infre-quent sex*	*Other*	*Total*
Africa														
Burundi	1987	34.8	3.3	4.5	7.7	4.1	5.7	1.0	3.5	1.0	3.0	7.4	24.0	100.0
Ghana	1988	33.5	5.3	2.9	16.0	3.4	6.8	0.5	6.3	3.9	..	8.3	13.1	100.0
Kenya	1899	27.6	1.2	0.2	16.8	2.2	19.8	0.4	2.7	4.1	1.9	7.3	16.0	100.0
Mali	1987	41.3	3.4	..	4.6	..	12.1	3.2	12.3	..	..	0.5	22.6	100.0
Sudan	1989/90	32.8	4.2	1.2	26.3	2.7	10.7	0.3	7.5	3.0	9.6	1.2	0.6	100.0
Uganda	1988/89	48.2	10.1	4.9	8.0	2.8	8.4	0.9	1.7	3.9	2.8	3.9	4.4	100.0
Asia														
Sri Lanka	1987	10.4	3.2	0.3	19.3	2.0	14.6	0.6	3.6	3.2	..	13.3	29.3	100.0
Thailand	1987	4.4	1.8	0.6	34.8	4.2	2.1	..	7.5	8.5	..	11.8	24.3	100.0
Latin America and the Caribbean														
Bolivia	1989	52.8	1.5	7.8	9.3	1.9	5.6	1.5	..	..	1.0	7.0	11.6	100.0
Colombia	1990	8.2	4.5	6.7	29.7	1.0	5.9	..	..	7.4	3.6	5.1	27.9	100.0
Dominican Republic	1986	7.2	0.7	2.0	31.1	..	3.5	..	0.5	9.2	5.3	5.9	34.8	100.0
Ecuador	1987	5.6	7.4	3.7	31.5	..	5.6	..	7.4	1.9	11.1	1.9	24.1	100.0
Peru	1986	17.4	7.1	9.0	29.7	..	11.0	..	1.3	1.3	1.9	9.0	12.3	100.0
Average		24.9	4.1	3.4	20.4	1.9	8.6	0.6	4.2	3.6	3.1	6.4	18.8	100.0

Source: John Bongaarts and Judith Bruce, "The causes of unmet need for contraception and the social content of services", *Studies in Family Planning* (New York), vol. 26, No. 2 (March/April 1995), table 2.

NOTE: Women who gave post-partum amenorrhoea or menopause/infecundity as the reason for non-use are excluded.

Indeed, side effects and worries connected with them stand out consistently in studies of different populations as one of women's major concerns about contraception (Shah, forthcoming). As might be expected, women currently using a modern method are less likely than non-users to express such concerns about their method. A study of results for Indonesia, Mexico, the Philippines and Thailand showed that, with few exceptions,[14] over 80 per cent of current users of each method reported no problems with it (Shah, forthcoming). Yet, among those reporting a problem, health concerns were cited overwhelmingly. Based on differences in current levels of method use between women associating health problems with a method and those reporting that there was no problem with the method, Bongaarts and Bruce (1995) estimate that health concerns reduce current use by 71 per cent for the pill, 86 per cent for IUDs and 52 per cent for sterilization, in the countries included in table 37. Health effects are also a major concern for women in developed countries. In a study that included eight European countries, "health" was the single most common reason reported for changing a method: of the approximately 80 per cent of women reporting a method change, an average of roughly half gave health concerns as the reason; the next-most-common reason was "reliability", mentioned by about one fifth of those who switched to another method. (Riphagen and Ketting, 1990).

A third important reason for non-use in some of the countries presented in table 37 is the husband's disapproval, which may indicate interspouse disagreements about whether to stop or postpone childbearing as well as disapproval of contraception per se. This reason tends to be more common in sub-Saharan Africa than elsewhere, although it was also reported by 11 per cent of the women in Peru and by 15 per cent in Sri Lanka. An in-depth study in the Philippines also concluded that husbands occupy a major role in accounting for non-use. Although rarely cited by women as the main reason for their non-use of contraception, husbands' wishes were frequently brought up in the lengthier discussions, and emerged as a major explanatory factor in a multivariate analysis. Most women described their husbands as having strong and definite views on fertility and contraception, but the unmet-need women are more likely to describe their husbands as dominating decisions about those issues. The women with unmet need were not found to have a weaker desire to restrain their fertility than those who were using contraception. Instead, "rather weak attachment to preferences characterized *most* of these women, and it is this that permits other

factors—especially the husband's desires—to serve as obstacles to contracepting among some women" (Casterline, Perez and Biddlecom, 1995). Qualitative studies in some other countries, especially in Africa, also point to the importance of the husband's views in determining contraceptive use (Shah, forthcoming; McCauley and others, 1994).

Religious objections were cited relatively infrequently in most countries, although 12 per cent of the women with unmet need in Mali gave that answer. Their own opposition to family planning was given as the reason for non-use by less than 5 per cent of the women in most countries.

The available information about reasons for unmet need leaves many questions unanswered. In some countries, especially in sub-Saharan Africa, it is plain that even the most minimal familiarity with modern family planning methods is lacking for many women and, in those cases at least, there is an obvious need for expansion of services and much-improved dissemination of information. In many other countries, though, the large majority of women have at present heard of modern methods and know of a place at which to obtain services, yet the percentage of women with an evidently unmet need remains substantial. Most large-scale surveys do not inquire in depth about women's (or men's) understanding of methods—how they work, how well they work, their risks and benefits. While concerns about health effects of modern methods are widespread, not all fears are well-founded (Nag, 1985).[15] Furthermore, as with many other life choices that require a compromise, most people are willing to put up with a degree of risk of side effects in order to avoid the risk of an unwanted or mistimed pregnancy. Pregnancy also carries a substantial health risk to women, especially in developing countries. There is a need to know more about the nature and severity of the effects women fear, and to ask questions about perceived risk in similar detail to women using and not using a modern method (Casterline, Perez and Biddlecom, 1995).

Writing about contraception in Europe, Ketting (1990, p. 7) notes that the emphasis on health issues in connection with family planning has been growing along with "the medicalization of contraception in general" which "has caused a growing emphasis on medical, i.e. health aspects of contraception...In spite of this situation, non-interference with sexual intercourse and ease of use have remained important criteria for the evaluation of contraceptive methods. Methods that strongly interfere with sexuality and that require scrupulous use, such as the diaphragm or the temperature method, have never become popular in Europe, although they might appear to be less damaging to health".

The drawbacks of existing contraceptive methods point to a need for new and improved methods, and the human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) epidemic has renewed interest in barrier methods that can guard against disease as well as prevent pregnancy. Indeed many ideas are currently under investigation (see box 3). However, contraceptive research in the private sector has been declining and the loss has not been made up by public sector and international sources. Estimates of the total amount of funding of contraceptive research showed a decline of approximately 25 per cent between 1972 and 1983, and a further 17 per cent decline between 1983 and 1993 (Klitsch, 1995). Reasons for the withdrawal of many private sector firms from contraceptive research include the belief by many companies that new products would be unlikely to produce substantially greater profits in "mature" markets such as the United States; legal and regulatory issues, which contribute to high development costs; delays in obtaining approval for new methods and costs of defending against product liability lawsuits in the United States, in particular for methods that capture only a small fraction of the total market. Heightened public concern about side effects and controversy connected with the abortion debate may have also contributed to industry decisions to back away from pursuit of major new methods (Klitsch, 1995). Revitalizing the contraceptive research effort will require building new partnerships between women's health advocates and other consumer groups, researchers in the public sector and private industry. One of the messages of the Programme of Action of the International Conference on Population and Development (United Nations, 1995, chap. I, resolution 1, annex) is the importance of focusing on women's and men's needs and perspectives when deciding on priorities for research and development, as well as in service delivery. Convenience of use and individual control over beginning and stopping the use are qualities that many users desire in a contraceptive method, in addition to safety and efficacy at preventing pregnancy.

In the above discussion of unmet need, men appeared only as one of the obstacles to women's use of contra-

Box 3. Contraceptive technologies

Compared with the 1960s and 1970s, when the first generation of oral pills and the long-acting intrauterine device (IUD) revolutionized contraceptive practice in many countries, the 1980s and 1990s have not seen the emergence of major new types of contraception. The anti-progestogen mifepristone (RU-486) has been introduced as an abortifacient, not a contraceptive, although more recent research suggests that the compound may have several contraceptive applications such as for emergency contraception. That new contraceptives are currently available or in late stages of testing is mainly the result of incremental improvements rather than radical innovations. They include improvements in IUD design and hormonal dosage (for example, low-dose pills and minipill), hormonal form (a new generation of progestins) and delivery systems (subcutaneous implants—Norplant was the first to become available; skin patches; vaginal rings and so forth). Areas of current contraceptive research for men and women include new barrier methods, hormonal contraception for men, improved surgical procedures for male sterilization, new types of injectables and antifertility vaccines. Three areas are highlighted below.

Barrier methods. Renewed interest in barrier methods has led to the development of condoms with improved strength and reliability for the prevention of sexually transmitted diseases (STDs), including the human immunodeficiency virus (HIV). Current efforts are directed towards improving the existing latex condoms and testing other materials, including a new polyurethane. The female condom, which has the advantage of being under a woman's control, has reached the market in recent years, and studies are being conducted to evaluate its efficacy for preventing conception and STDs. Preliminary results point to good acceptability among women. However, the current high price of the female condom is an impediment to its wider use, particularly in public sector-supported programmes. There are also efforts to develop new spermicides with virucidal and microbicidal effects. The products currently available, although expected to reduce HIV transmission, have the disadvantage of being toxic for vaginal epithelium and normal vaginal flora. With very frequent and heavy use, they can cause irritation, proceeding to lesions that might increase STD transmission, an effect opposed to the original goal. Research is also getting under way to find compounds that will kill disease-causing agents while sparing spermatozoa, permitting pregnancy without the risk of contracting STDs.

Male sterilization. Methods of no-scalpel vasectomy and other methods, involving percutaneous injection of occluding agents into the vas deferens, promise to lead to higher acceptability on the part of male clients wishing to have no more children. Vas occlusion methods of male sterilization are potentially more easily reversible than conventional vasectomy, and this may increase their attractiveness.

Immuno-contraceptives or vaccines. A successful contraceptive vaccine would prevent pregnancy by blocking a single step unique to the series of chemical signals needed to establish pregnancy. Because of the specificity of action, there would be no systemic side effects, such as those occurring with current hormonal methods. Several leads have been explored in the search for such a vaccine. A female antifertility vaccine based on human chorionic gonadotrophin (hCG) has undergone initial clinical testing. A vaccine for men based on the gonadotrophin hormone-releasing hormone (GnRH) is being tested for its efficacy among men with prostate cancer; preliminary trials showed a beneficial therapeutic effect on that condition. This vaccine is yet to be tested for its contraceptive effect in healthy men. Other vaccines, such as anti-GnRH for women and anti-FSH (follicle-stimulating hormone) for men, have been studied in small numbers of subjects in early clinical trials. At present, no candidate vaccine formulation has been found to combine a high degree of effectiveness with the desired specificity of action, and substantial additional research is needed to establish long-term safety and effectiveness. Vaccines have also stirred debate among women's groups, some of which have advocated a halt to research in this area. Predictability of the effective period, return of fertility and convenience of administration are other issues in vaccine development. The contraceptive action of most potential vaccines that have been investigated so far has worn off fairly quickly; thus, in terms of duration of effect, "a contraceptive vaccine may prove to resemble current injectables more than it will disease vaccines" (Klitsch, 1995).

ception. Clearly this is inadequate as an approach to understanding men's role in family planning. Here, though, the limitations of the available, mostly woman-specific, fertility survey data come to the fore. However, there are some studies, using a variety of research methods, that have involved both men and women. While the results defy simple generalization, this is perhaps appropriate, since a variety of situations coexist within each society. Some of the more general points to emerge from recent reviews of the literature and issues are summarized below:

(*a*) Many men approve of family planning and contraception: "A number of studies...conclude that the opposition of men to family planning is greatly exaggerated" (Shah, forthcoming; Ringheim, 1993; Green, Cohen and Belhadj-El Ghouayel, 1995; and Gallen, 1986). As noted earlier, in many African countries men report higher levels of contraceptive use than women do. However, there are some countries where substantial percentages of men say they do not approve of family planning. A review of 11 mostly African surveys conducted by the DHS programme showed that only 16 per cent of men in Mali who knew of a contraceptive method approved of family planning, less than 50 per cent approved of it in Cameroon and Senegal, and less than two thirds in Burkina Faso, the Niger and Pakistan (Shah, forthcoming). Low levels of knowledge about contraception tended to go together with low levels of approval. Still, more women than men approved of family planning in most of the African countries, even though women were often less likely to know of a contraceptive method (Ezeh, Seroussi and Raggers, forthcoming);

(*b*) Men and women both have a need for better information about contraception and for services tailored to their needs. In most countries where substantial proportions of women know of no method, a large proportion of men are also unfamiliar with contraception (Ezeh, Seroussi and Raggers, forthcoming);

(*c*) In general, within a society, men's and women's desires for numbers of children are usually quite similar (Mason and Taj, 1987). In Africa, men often report wanting a larger number of children than women want, although the high level of polygyny in many of these societies makes it difficult to relate these responses to a particular woman's childbearing (Alan Guttmacher Institute, 1995). Even where men and women want the same number of children in the aggregate, there is typically a substantial amount of disagreement within individual couples;

(*d*) In some societies, many men do expect to make the choice about using or not contraception and when to use it. Such views are largely culture-specific and tend to be associated with traditional norms that hold men responsible for maintaining the whole family's honour and position. In such cases, men generally claim authority over a wide range of family matters, not just reproduction (McCauley and others, 1994). In other societies, a common problem for women is that men are reluctant to assume any responsibility for family planning, or for the consequences of sexual behaviour more generally: "In general, it can be said that males worry less about contraception than women do, but many studies show that they are not totally uninvolved" (Mundigo, 1995, p. 23). There is little systematic information about how interspouse differences concerning family planning are resolved in practice. In five sub-Saharan African countries studied by Bongaarts and Bruce (1995), 18 per cent of the women who believed that their husband approved of family planning were using contraception, but only 6 per cent of those whose husband disapproved. In some cases, the woman's wishes may rarely prevail (for Ghana, see Ezeh, 1993), but it should not automatically be assumed that such is the case in most societies. This is an issue that deserves more—and more systematic—attention than it has received to date. Surveys in Egypt, India and Turkey indicate that women "have more say about using contraception than about most other important decisions. In general, better-educated women have more decision-making power within marriage, including more influence over decisions about reproduction and family planning" (McCauley and others, 1994, p. 18). At the same time, some women express fears, which may be well-founded, about asserting before, or even mentioning to, their partners their own fertility and family planning desires;

(*e*) Many studies show a low level of interspousal communication about family planning. A few studies suggest that spouses often misperceive each other's views. In particular, a study in Bangladesh showed that in cases where the wife believed that her husband was opposed to family planning, 27 per cent of the husbands reported that they were actually using a method, and an additional 50 per cent that they approved of family planning (Shah, forthcoming).

Notes

[1]Including consensual unions, where such unions were covered in the data source.

[2]This is a rough estimate, since assumptions were required for countries that lacked survey data. In Latin America, countries without data were assumed to have the same level and pattern of contraceptive use as those with data, while in Asia and Africa missing countries were assumed to have lower levels of contraceptive prevalence than the average for countries with data: 10 per cent in sub-Saharan Africa, 55 per cent in Eastern Asia and the Asian republics that had been part of the former Union of Soviet Socialist Republics (USSR), and 30 per cent in the remainder of Asia and Northern Africa. However, for developing countries as a whole, alternative reasonable assumptions make relatively little difference, because survey data exist for over 90 per cent of the population of developing countries. European countries lacking data were assumed to have the same level and pattern of use as the observed average for the European region to which they belonged

[3]Average dates calculated by weighting individual survey dates by the number of married women of reproductive age in each country.

[4]Methods requiring clinical services and/or regular supplies include male and female sterilization; intrauterine devices; hormonal pills, injections and implants; condoms; and vaginal barrier methods including diaphragm, cervical cap and spermicidal foams, jellies, suppositories and sponges. This group consists primarily of relatively new and effective methods. For convenience, this group is referred to above as comprising "modern" methods, even though the condom has a long history of use, and some variants of periodic abstinence that are of recent origin are not included in the grouping.

[5]A 1990 survey that covered all the republics of the former USSR inquired about knowledge and use of contraceptive devices, a category that presumably includes IUDs and condoms, but would exclude most other methods, including the traditional methods that still account for most of contraceptive practice. Overall, 28 per cent of women of reproductive age were currently using a contraceptive device. Nineteen per cent reported always using such a device and 9 per cent sometimes.

[6]Countries with trend information include approximately 85 per cent of married women of reproductive age in the developing regions and 55 per cent in the developed regions.

[7]Trend data are available for countries that include nearly 60 per cent of the population of Africa, over 95 per cent of that of Asia, and slightly less than half of the population Latin America and the Caribbean.

[8]Although calendar rhythm predominates in all the national samples with available data, in Rodrigues Island, which is part of Mauritius, in 1991 8.5 per cent of couples were using one of the newer periodic abstinence methods and 0.9 per cent the calendar rhythm method (Mauritius, Ministry of Health, 1993).

[9]The estimates in table 33 include women not using contraception who are at risk for pregnancy and currently want no more children or want to delay the next birth by two or more years, plus an allowance for women who are temporarily removed from risk for pregnancy because of an unwanted or mistimed birth. Bongaarts (1990), although agreeing that estimates of "unmet need" should take account of the latter group of women, argues that Westoff and Ochoa's estimation method tends to overstate the amount of allowance that should be made. Bongaarts' estimates of unmet need are, on average, approximately 5 percentage points lower than the estimates shown in table 33 (Westoff and Bankole, 1995), which are presented here from a desire to distinguish between need for purposes of birth-spacing and limiting family size. The different estimation methods both indicate substantial levels of unmet need in developing countries.

[10]The countries were Burundi, Colombia, the Dominican Republic, Ecuador, Egypt, Guatemala, Thailand, Togo, Tunisia, Uganda and Zimbabwe.

[11]The organization's name has since been changed to Population Action International.

[12]This section is based primarily on a longer discussion in *Levels and Trends of Contraceptive Use as Assessed in 1994* (United Nations, 1996), and Westoff and Bankole (1995).

[13]Women who are likely to be infecund are omitted from the group considered to be in need of contraception. For the estimates summarized in figure 18, infecundity was estimated as follows: "non-pregnant women in union for at least five years who have not used contraception and who have not been fertile are classified as infecund, as are non-pregnant women who have not menstruated in the past twelve weeks" (Westoff and Ochoa, 1991).

[14]Exceptions were Thailand, for the pill and injectable; and Mexico for the pill and IUD. In those cases, between 68 and 79 per cent of current users reported no problem with their method.

[15]A synopsis of research findings about the harmful and beneficial medical side effects of the major modern methods can be found in Ross and Frankenberg (1993)

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IV. ABORTION

Approximately 25 million legal abortions were reported worldwide around 1990, or one legal abortion for every six births (table 38). This estimate must be considered the minimum number, as no attempt has been made to estimate the magnitude of unreported legal abortions. In addition, the World Health Organization (WHO) has estimated that some 20 million unsafe abortions are performed each year, or one unsafe abortion for every seven births (World Health Organization, 1994).

Induced abortion has attained high public visibility in many countries, both developed and developing. In some cases, public concern has been voiced primarily because of the alarmingly high levels of maternal mortality and morbidity that have resulted from unsafe abortion. In others, the visibility has resulted more from public debate concerning the moral and legal status of abortion and the role that the State should play in permitting or denying access to safe abortion.

At the International Conference on Population and Development in 1994, abortion proved to be one of the most contentious issues, with much of the debate dealing directly or indirectly with various abortion-related issues. At the end of the debate, delegations agreed on the following wording:

> "In no case should abortion be promoted as a method of family planning. All Governments and relevant intergovernmental and non-governmental organizations are urged to strengthen their commitment to women's health, to deal with the health impact of unsafe abortion[20] as a major public health concern and to reduce the recourse to abortion through expanded and improved family-planning services. Prevention of unwanted pregnancies must always be given the highest priority and every attempt should be made to eliminate the need for abortion. Women who have unwanted pregnancies should have ready access to reliable information and compassionate counselling. Any measures or changes related to abortion within the health system can only be determined at the national or local level according to the national legislative process. 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 the management of complications arising from abortion. Post-abortion counselling, education and family-planning services should be offered promptly, which will also help to avoid repeat abortions" (United Nations, 1995b, chap. I, resolution 1, annex, para. 8.25).

[20]Unsafe abortion is defined as a procedure for terminating an unwanted pregnancy either by persons lacking the necessary skills or in an environment lacking the minimal medical standards or both (based on World Health Organization, *The Prevention and Management of Unsafe Abortion*, Report of a Technical Working Group, Geneva, April 1992 (WHO/MSM/92.5))."

In the light of this recommendation, at the Fourth World Conference on Women, held at Beijing in September in 1995, Governments were further urged to consider reviewing laws containing punitive measures against women who have undergone illegal abortions (United Nations, 1996, chap. I, resolution 1, annex II, para. 106 (k)).

Induced abortion is one of the oldest methods of fertility control and one of the most widely used (United Nations, 1993 and 1995a). It is practised both in remote rural societies and in large modern urban centres in all regions of the world, although with differing consequences. When performed by appropriately qualified practitioners under hygienic circumstances, induced abortions generally pose a relatively small threat to women's reproductive health. Where abortion is illegal, however, it is usually performed in medically substandard and unsanitary conditions, leading to a high incidence of complications and resulting in chronic morbidity and often death. Indeed, WHO has estimated that approximately 70,000 women die annually as a result of complications arising from unsafe abortion (table 39). Moreover, long-term consequences of unsafe abortion may include chronic pelvic pain, pelvic inflammatory disease, tubal occlusion, secondary infertility and increased risk of spontaneous abortion in subsequent pregnancies (World Health Organization, 1994).

TABLE 38. TOTAL REPORTED LEGAL ABORTIONS, AROUND 1990

Country	Year	Number of abortions
A. Developed countries		
Albania	1990	26 612
Armenia	1990	25 282
Australia	1988	63 200
Austria	1988	15 082
Azerbaijan	1990	25 536
Belarus	1990	254 726
Bosnia and Herzegovina	1988	69 769
Bulgaria	1992	132 087
Canada	1990	92 901
Croatia	1990	38 644
Czech Republic	1992	106 763
Denmark	1992	18 833
Estonia	1990	25 246
Finland	1990	12 232
France	1991	171 014
Georgia	1990	61 127
Germany	1992	74 858
Greece	1991	11 109
Hungary	1990	90 394
Iceland	1992	743
Italy	1992	146 639
Japan	1991	436 299
Kazakhstan	1990	354 430
Kyrgyzstan	1990	78 105
Latvia	1990	45 360
Lithuania	1993	42 023
Netherlands	1992	19 422
New Zealand	1990	11 173
Norway	1992	15 164
Poland	1990	59 417
Republic of Moldova	1990	81 931
Romania	1990	913 973
Russian Federation	1990	3 920 287
Slovakia	1992	42 262
Slovenia	1990	15 454
Spain	1990	37 231
Sweden	1992	34 849
Switzerland	1990	12 900
Tajikistan	1990	52 658
The former Yugoslav republic of Mcedonia	1990	21 994
Turkmenistan	1990	35 698
Ukraine	1990	1 019 038
United Kingdom of Great Britain and Northern Ireland	1991	190 562
United States of America	1991	1 556 510
Uzbekistan	1990	214 137
Yugoslavia	1988	201 586
SUBTOTAL		10 875 260
B. Developing countries		
Bangladesh[a]	1990	450 000
Belize	1990	1 001
Chile	1990	29
China	1989	10 600 000
Cuba	1990	147 530
India	1991	600 000
Israel	1990	15 000
Malaysia	1988	25 320
Mongolia	1990	25 957
Panama	1988	5 051
Republic of Korea	1991	501 593
Singapore	1991	17 798
Tunisia	1990	20 000
Turkey	1990	109 217
Viet Nam	1991	1 130 000
Zambia	1988	13 978
SUBTOTAL		13 662 474
TOTAL		24 537 734

Source: The Population Policy Data Bank maintained by the Population Division of the of the United Nations Secretariat.

[a]Including menstrual regulation.

A. DATA ON ABORTION

1. Sources of data on abortion

The most commonly employed sources of abortion statistics include official statistics on legal abortions performed, surveys of abortion service providers, hospital admission records on women admitted for abortion complications and household surveys containing information on women's pregnancy history. Household survey data may provide both period and lifetime abortion experience.

In general, countries with laws permitting abortion require that all performed abortions be reported to the Government. These statistics are usually published by national health statistics agencies. In countries where abortion is available on request, where abortion services are sufficient and adequate, and where there is compliance with reporting requirements, one may expect official figures to provide the most complete estimate of abortions performed. The same may be said of countries where abortion is de facto available for socio-economic reasons. If abortion is not readily available, even when legal, abortions may be sought in other countries or in

TABLE 39. GLOBAL AND REGIONAL ESTIMATES ON INCIDENCE OF, AND MORTALITY FROM, UNSAFE ABORTIONS

Major area and region	*Number of unsafe abortions (thousands)*[a]	*Unsafe abortions per 1,000 women, aged 15-49*	*Number of deaths from unsafe abortion*[a]	*Mortality from unsafe abortion per 100,000 live births*	*Percentage of maternal deaths*
World total[a]	20 000	15	70 000	49	13
More developed regions[b]	2 340	8	600	4	14
Less developed regions	17 620	17	69 000	55	13
Africa	3 740	26	23 000	83	13
Eastern Africa	1 340	31	10 000	101	15
Middle Africa	180	12	2 000	77	11
Northern Africa	510	16	1 000	23	7
Southern Africa	230	22	500	36	13
Western Africa	1 480	34	10 000	104	14
Asia[b]	9 240	12	40 000	47	12
Eastern Asia[b]	—	—	—	—	—
South-central Asia	6 000	21	33 000	81	14
South-eastern Asia	2 850	25	5 000	43	13
Western Asia	380	13	1 000	22	8
Europe	260	2	100	2	10
Eastern Europe	110	5	Less than 100	4	13
Northern Europe	—	—	—	—	—
Southern Europe	150	4	Less than 100	2	16
Western Europe	—	—	—	—	—
Latin America and the Caribbean	4 620	41	6 000	48	24
Caribbean	170	19	400	50	19
Central America	890	31	800	23	14
South America	3 560	47	5 000	58	26
Northern America	—	—	—	—	—
Oceania[b]	20	17	Less than 100	29	5
USSR (former)	2 080	30	500	10	23

Source: World Health Organization, *Abortion: A Tabulation of Available Data on the Frequency and Mortality of Unsafe Abortion*, 2nd ed. (Geneva, 1994).

[a]Based on the 1990 United Nations projections of births.

[b]Japan, Australia and New Zealand being excluded from the regional estimates, but included in the total for developed countries.

unauthorized facilities, in which case official figures would underestimate the actual number of women obtaining abortions. Insufficient access to legal abortion may be the result of lengthy procedures required to obtain an abortion (as was the case in the former Union of Soviet Socialist Republics (USSR)) or of insufficient service availability, including both clinics and physicians (as in India and Zambia), or may simply be due to the refusal by available staff to perform the abortion on moral grounds (as in Austria) (United Nations, 1992, 1993 and 1995a).

Not all countries, however, require providers to register the abortions performed in their facilities. In those cases, statistics are often available from other health agencies and associations or from individual surveys of abortion service providers. Surveys of providers are the next best source of abortion data. These surveys have been conducted in order to estimate abortion rates in countries permitting abortion but with no official reporting requirements as well as in countries where abortion is illegal. Where abortion is legal, surveys of providers generally give accurate estimates of

abortion rates. Where abortion is illegal, however, providers may not be willing to provide the information in order to protect the women's confidentiality and to avoid prosecution. Moreover, non-medical providers may be difficult to identify. Women successfully inducing their own abortion are also missed.

Surveys of women, either as part of a general household survey or in a more specialized demographic or health survey, can also be a source of information on abortion. This category includes abortion statistics based on personal interviews with women in households or hospitals, or as participants in specific programmes, concerning their reproductive history or, more specifically, their abortion experience. This source is useful regardless of the legal status of abortion because it provides measures both of prevalence and of incidence. However, survey data have their drawbacks. Underreporting or poor recall of induced abortion in surveys, because of fear of social disapproval, has been found to be considerable even when abortion is legal. In addition, the statistics obtained from pregnancy histories are retrospective and are usually presented as lifetime measures rather than as annual measures.

Where abortion is illegal, the most commonly used source of information on abortion statistics is hospital admission records. Hospital admission records include all women admitted for treatment of the complications of abortion, whether spontaneous or induced. In these cases, the underestimation of actual induced abortion rates can be substantial, as only those cases where an abortion resulted in complications are hospitalized. Furthermore, only hospital-based treatments are included. Deaths occurring before a hospital has been contacted also remain unreported. Despite problems with underestimation of induced abortion, hospital admission records are useful because they give an indication of the minimum incidence of abortion in a given region.

In addition to the potential biases mentioned above, all measures miss self-induced abortion employing prostaglandins during very early pregnancy. They may also miss abortions performed by menstrual regulation, inasmuch as in some countries it is considered a family planning method, not an abortifacient. The use of RU486, the Roussel-UCLAF "abortion pill", might also remain unreported.

2. Incidence of abortion

As previously noted, recent estimates indicate that approximately 25 million legal abortions were reported worldwide as of 1990, or the closest year for which data are available. In addition, according to revised estimates prepared by WHO in 1993, approximately 20 million unsafe abortions are performed annually on a global basis, 90 per cent of which take place in developing countries (World Health Organization, 1994).

Substantial variations exist in incidence of unsafe abortion by region. The incidence of unsafe abortion varies from a high of 30 or more unsafe abortions per 1,000 women aged 15-49 years in Eastern Africa, Western Africa, Latin America and the Caribbean and the former USSR to negligible in Eastern Asia, Northern and Western Europe and Northern America (World Health Organization, 1994). Some of the variations in the incidence of unsafe abortion can be explained by the less restrictive nature of abortion laws in Northern Europe and Northern America (11 of 12 countries permit abortion on request or for economic or social reasons), as compared with the situation in Eastern and Western Africa and Latin America (2 of 45 countries permit abortion on request or for economic or social reasons). Lack of legal restrictions on abortion, however, does not necessarily guarantee access to safe abortion, as evidenced by the relatively high incidence of unsafe abortion in the former USSR (estimated by WHO at 30 unsafe abortions per 1,000 women aged 15-49 years), despite the availability of abortion on request since 1956.

In Africa, the desire for large families and the persistence of high rates of fertility, with a regional average of 5.8 births per woman during 1990-1995, suggest that abortion may be less common in Africa than in regions that have undergone significant fertility declines. Nevertheless, fragmentary evidence indicates that complications from unsafe abortions pose major health problems for the African region. The region experiences almost 4 million unsafe abortions annually, or nearly 30 unsafe abortions per 1,000 women of reproductive age.

Most of the information on the incidence of unsafe abortion in Africa has been obtained from fragmentary hospital data, which indicate that the problem of unsafe abortion is increasing. For example, Kenyatta National

Hospital in Nairobi, Kenya, which reported some 2,000-3,000 admissions a year for abortion complications in the late 1970s and early 1980s, was treating at least 11,000 cases annually by 1990. Studies carried out in Kenya reveal that women who resort to abortion are most likely to be adolescents and women under age 25 (Baker and Khasiani, 1992). Various studies also have shown that a high incidence of unsafe abortion exists among students who resort to illegal abortion to avoid expulsion from school. Similar findings emerge from studies in Nigeria (Ikagbue, 1990). In Ghana, however, where abortion legislation is less restrictive than in Kenya and Nigeria, the situation is somewhat different. A study in 1993 indicated that, of 900 women seeking an induced abortion or reporting complications from induced abortion, more than one half (55 per cent) were married and only one fourth were adolescents (World Health Organization with United Nations Development Programme, United Nations Population Fund and World Bank, 1994). The most important reason for resorting to abortion was the common perception that contraceptive use entailed health risks or that contraceptives were complicated or difficult to use.

More than one half of all the reported legally performed abortions in the world take place in Asia. While the largest number of abortions occur in China, Viet Nam has the highest abortion rate in the region, 100 abortions per 1,000 women of reproductive age (Goodkind, 1994). In comparison, the highest rate observed in China was 62 abortions per 1,000 women in 1983 (United Nations, 1993). Unlike the situation in many countries, abortion in Viet Nam is concentrated among married women in the peak childbearing years; fewer than 13 per cent of abortions were performed among women under age 25, while less than 10 per cent of abortions were performed on unmarried women (Goodkind, 1994).

In India, following liberalization of the abortion law in 1971, the Government embarked on a programme of training and provision of equipment to make abortion services available throughout the country. Despite the considerable expansion of the programme, the number of illegally induced abortions and septic abortion-related admissions to hospitals did not decline substantially (Ramachandran, 1994). The number of legally performed abortions increased from 278,000 in 1977 to 600,000 in 1991. The Government is attempting to deal with the problem by improving accessibility to abortion services in rural areas.

In Latin America and the Caribbean, where abortion on request is available only in Cuba, 4.6 million unsafe abortions are estimated to be performed in the region each year (World Health Organization, 1994). One of the few methods of determining the incidence of abortion in the region has been indirectly through hospital records of women who received clandestine abortions and were subsequently hospitalized for complications arising from the procedure. One study employing this indirect technique used a uniform multiplier of five, assuming that about one in five women who obtain a clandestine abortion are hospitalized (Alan Guttmacher Institute, 1994). The results for the six Latin American countries covered in the study—Brazil, Chile, Colombia, the Dominican Republic, Mexico and Peru—indicated that a total of some 2.8 million induced abortions were performed each year in those countries.

In the United States of America, the number of abortions performed in 1992 fell to its lowest level since 1979, while the abortion rate gradually declined from a high of 29 per 1,000 in 1979 to 26 per 1,000 in 1992. A number of reasons have been put forth to explain this downward trend, including the ageing of the population, greater acceptance of single parenting, less acceptance of abortion, wider and more effective use of contraceptives and more limited access to abortion services (Henshaw and van Vort, 1994).

Although it would be desirable to have data on the incidence of abortion in countries classified by age and by marital status, as well as information on the incidence of repeat abortion, such data are not generally available. Adolescent abortion , however, in line with the heightened interest in adolescent reproductive behaviour, is a growing area of concern. Because adolescents are sometimes unwilling or unable to seek appropriate health care, or wait longer in the gestation period to obtain help, induced abortion generally presents a greater risk to an adolescent's life and health than to an adult woman's (World Health Organization, 1995). According to recent United Nations estimates, abortion among adolescents has accounted for 15-26 per cent of total reported legal abortions in a number of developed and developing countries, for which data are available (table 40). The United States of America, where one fourth of abortions were performed on adolescents, is followed by the United Kingdom of Great Britain and Northern Ireland and Canada, where about one fifth of abortions were performed on adolescents. Denmark, Finland, Hungary, the Netherlands, Norway, and Swe-

TABLE 40. ADOLESCENT ABORTION[a]

Country	Year	Abortion rate[b]	As percentage of all abortions performed
Bulgaria	1992	15.1	9.9
Canada	1990	14.3	19.1
Cuba	1990	89.3	12.7
Denmark	1991	16.4	14.9
Finland	1990	13.6	16.4
France	1990	7.9	10.1
Hungary	1990	36.7	16.2
Italy	1990	5.5	7.4
Japan	1992	6.6	7.7
Kazakhstan	1992	38.7	9.3
Latvia	1992	44.0	9.7
Lithuania	1991	11.9	6.0
Netherlands	1995	5.2	15.9
New Zealand	1992	16.2	13.0
Norway	1992	17.7	17.9
Russian Federation	1991	68.9	10.0
Slovakia	1991	15.0	6.9
Slovenia	1992	13.3	6.9
Sweden	1992	19.3	15.3
United Kingdom	1992	17.3	19.4
United States	1988	45.5	25.6

Sources: *Demographic Yearbook, 1993* (United Nations publication, Sales No. E/F.95.XIII.1); *The Sex and Age Distribution of the World Population: The 1994 Revision* (United Nations publication, Sales No. E.95.XIII.2).

[a]Reported legal abortions performed for women under age 20.

[b]Per 1,000 women aged 15-19.

den had the next highest incidence of abortion among adolescents. The range of adolescent abortion rates is also striking, extending from figures of 89.3 and 68.9 abortions per 1,000 women aged 15-19 in Cuba and the Russian Federation, respectively, to figures of 6.6 and 5.2 in countries such as Japan and the Netherlands, respectively.

B. MAJOR DIMENSIONS OF ABORTION LAW

Broadly speaking, the abortion laws and policies of a country are the product of a complex interaction among its existing social, political, economic and religio-cultural conditions. The nature of these laws and policies also depends on the legal system in effect in the country and, particularly in developing countries, on the relationship between this legal system and other legal systems that may at one time have been operative in the country or that are still in effect in certain parts of the country or in certain circumstances. Moreover, the way in which laws are interpreted or enforced can greatly influence the actual practice of abortion in a country. Although a detailed examination of all these factors is beyond the scope of this chapter, a few general points are of importance in understanding abortion laws and policies:

(*a*) The majority of contemporary legal systems throughout the world have been shaped to some extent by one or more of the three main legal families: common law; civil law; and socialist law. The three systems, along with some religious legal systems, such as Islamic and canon law, have influenced the content of most abortion laws at present. Despite the great diversity in the countries of the world, abortion laws in many countries share great similarities, which are due to a large extent to colonialism. One result of colonialism was the imposition of the laws of the colonial powers on the countries over which they had control and the suppression of large portions of the systems of law that were in effect before their arrival. Although some of the indigenous legal systems have re-emerged since those countries achieved independence, much of the machinery of colonial legal systems still remains in effect in many countries. Thus, abortion laws in many developing countries resemble the laws of the major colonial powers: France, Portugal, Spain and the United Kingdom. Moreover, in many cases, it is the law of the colonial powers in effect at the time of independence, rather than the liberalized abortion laws enacted by those powers in recent decades. In addition, some non-Western countries, such as Japan and Turkey, have consciously based their modern laws, including abortion laws, on the models of Western European countries;

(*b*) Abortion law in many countries has been strongly influenced by religious factors. Indeed, this influence is perhaps stronger here than in most other areas of law, particularly in countries that adhere closely to Catholicism and Islam. With the succession to power of Islamic Governments in recent years, abortion law has been revised in accordance with Islamic law. Examples of such countries are Pakistan, the Islamic Republic of Iran, and the Sudan. A similar situation may also be observed in many countries where the Catholic church is a strong political force and principles of canon law inform thinking on abortion law;

(*c*) In the twentieth century, socialist principles, often in the form of Marxism, have played an important part in influencing abortion laws in a number of countries. In the wake of the Russian revolution of 1917 and the

expansion of socialism into Eastern Europe, Asia and various other countries, abortion laws were often amended to reflect the prevailing socialist ideology of the party in power. Socialist principles relating to sexual equality, economic exploitation of the working class and demographic policy were often translated into abortion laws. Examples include the laws of Romania and the former USSR. With the collapse of many of these socialist Governments, much of the ideological rationale for particular abortion laws has disappeared, and abortion has become a contentious issue with traditional moral and health considerations reasserting themselves in law;

(*d*) It should be noted that:

(i) The legal status of abortion may not always be fully determined by criminal-law provisions. Although abortion is most commonly dealt with in criminal codes, legal provisions on abortion can sometimes also be found in such other laws as public health codes, social welfare codes, individual laws dealing specifically with abortion, and codes of medical ethics, as well as court decisions. Most often, these laws and court decisions define circumstances under which abortions can be permitted as an exception to the general prohibition contained in the criminal code, enumerate conditions governing the performance of abortion, or specify in which situations the Government will pay for abortions. In order to understand the legal status of abortion, it is necessary to consult all of these legal sources;

(ii) In addition, although a criminal code may flatly prohibit the performance of an abortion, there may be limited circumstances under which an abortion can be legally performed—the most common being some serious threat to the life of the pregnant woman if the abortion is not carried out. Although unstated, this exception can be inferred because most criminal codes contain a general provision excusing what would normally constitute an illegal act when that act is performed within a state of necessity. In the case of abortion, a state of necessity means the preservation of the pregnant woman's life. That such a state of necessity does in fact exist will of course usually be decided on a case-by-case basis. One example is the criminal code of Egypt which, although it prohibits all abortions, also provides that a person who commits a crime in the case of necessity to prevent a grave and imminent danger that threatens him or another person shall not be punished, on condition that he has not caused it of his own volition or prevented it by other means (El-Moiz Nigm, 1986);

(*e*) As with other branches of law, the actual practice of abortion in a country is not always in accord with existing legal provisions. Many factors can influence it, including the degree to which a law is enforced or ignored and the availability and affordability of abortion services. Indeed, this divergence between law and practice may be particularly pronounced with regard to abortion given (*i*) that, despite great moral objections to its practice, there is a great demand for the procedure; (*ii*) that it can be performed in private and is difficult to detect unless there is serious injury to the pregnant woman; (*iii*) that it is difficult to prove an abortion has been induced rather than spontaneous; and (*iv*) that there are not enough legal resources to investigate, and prosecute as a consequence of, its every occurrence.

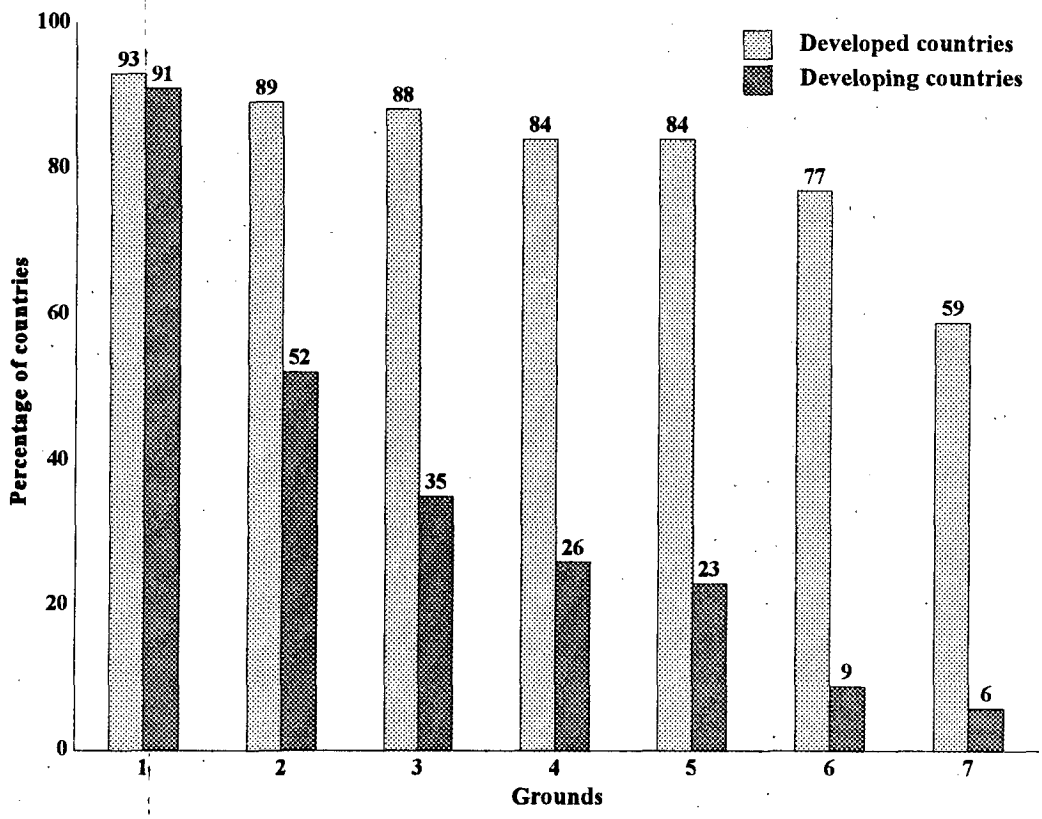
C. ABORTION LAWS: GROUNDS FOR PERMITTING ABORTION

The most common grounds for permitting abortions to be performed legally encompass any of the following *(a)* to save the life of the pregnant woman concerned (life grounds); (*b*) to preserve her physical health (narrow health grounds); (*c*) to preserve her mental health (broad health grounds); (*d*) cases of rape or incest (juridical grounds); (*e*) the existence of foetal impairment or the possibility of such impairment (eugenic grounds); (*f*) social or economic reasons (social grounds); and (*g*) request (figure 23). There are other circumstances in which some countries will allow abortions to be performed namely (*a*) when there is contraceptive failure; (*b*) when the pregnant woman has tested positive for human immunodeficiency virus (HIV); and (*c*) when the pregnant woman is a minor.

To save the life of the pregnant woman (life)

The most commonly accepted grounds for terminating a pregnancy are in order to save the life of the pregnant woman. Some countries attempt to define conditions that are considered life-threatening; most, however, do not, or use general terms, such as "serious", "grave" and "unavoidable", to qualify the required degree of threat. Although this degree of generality does leave some room for interpretation as to what can be considered life-threatening, in most countries it is clear that the danger

Figure 23. Grounds for permiting abortion, by level of development
(Proportion of countries)



Grounds

1 To save the life of the woman
2 To preserve physical health
3 To preserve mental health
4 Rape or incest
5 Foetal impairment
6 Economic or social reasons
7 Available upon request

Sources: Abortion Policies: A Global Review, vol. I, *Afghanistan to France* (United Nations publication, Sales No. E.92.XIII.8); vol. II, *Gabon to Norway* (United Nations publication, Sales No. E.94.XIII.2); vol. III, *Oman to Zimbabwe* (United Nations publication, Sales No. E.95.XIII.24).

must be a very serious one. In some countries, such as Malta and Chile, recent legislative amendments have suggested that performing an abortion, even if it is to save the life of the pregnant woman, may also be illegal.

To preserve the physical health of the pregnant woman (narrow health)

Performing an abortion on the grounds that it is necessary to preserve the physical health of the pregnant woman or, as is often phrased, in cases in which the continuation of the pregnancy would involve a risk of injury to her physical health, is also permitted in a majority of countries. The term "physical health", however, has been variously defined. In some countries, the definition is narrow or restricted to a list of clearly stated health conditions. In other countries, the term is broadly defined and allows much room for interpretation. In general, health is defined more broadly in countries that form part of the British Commonwealth and base their abortion laws on British law, than in countries in Latin America and Africa that are former

colonies of European countries other than the United Kingdom.

In many countries, abortion laws do not differentiate between physical and mental health, but rather allow abortions to be performed to avert a risk of injury to the pregnant woman's "health." As a rule, health tends to be narrowly interpreted in those countries, referring only to physical health.

To preserve the mental health of the pregnant woman (broad health)

A number of countries specifically adopt a broader definition of health and allow an abortion to be performed if there is a threat to the mental health of the pregnant woman. Some of those countries define these grounds for abortion in the following terms: an abortion can be performed when continuation of the pregnancy would involve greater risk of injury to the physical or mental health of the pregnant woman than the pregnancy's termination. The interpretation of "mental health" varies significantly. In addition to psychological distress caused by being pregnant, it sometimes includes juridical, eugenic, or economic and social grounds. For example, psychological distress could be the result of being raped, discovering that a foetus may be seriously impaired, or having few resources to care for an additional child. Explicit risk to the mental health of the pregnant woman constitutes grounds that appear most frequently in the abortion laws of countries within the British Commonwealth, reflecting similar concepts in British abortion law.

Pregnancy as a result of rape or incest (juridical)

When a pregnancy is caused by rape or incest, abortion is often permitted in countries with otherwise restrictive legislation; this is the case in some Latin American countries. Some abortion laws specifically mention both rape and incest; others make reference to rape only; and still others specify pregnancy resulting from an illegal act or a sex crime. A number of countries require that the rape or act of incest resulting in pregnancy be reported or prosecuted before permission for abortion can be granted. Several countries, including Uruguay and Peru, that do not permit abortion on juridical grounds, do allow the sentence to be reduced if the abortion was performed on those grounds. A number of Commonwealth countries allow abortion in cases of rape or incest even though their laws do not specifically refer to such grounds. As noted above, these grounds are interpreted as falling under the definition of mental health grounds.

Foetal impairment or the possibility of such impairment (eugenic)

A number of countries allow abortions to be performed when there is serious foetal impairment, either physical or mental; or the possibility of such impairment. As is the case with respect to juridical grounds, the performing of abortions on these grounds is sometimes allowed even in countries that have otherwise restrictive laws. Similarly, in many Commonwealth countries, no specific reference is made to these grounds in abortion laws because they are interpreted as falling within the purview of mental health grounds. Some countries specify the type and level of impairment necessary to justify the performance of an abortion.

Economic or social reasons

Abortions can be terminated in a number of countries for economic or social reasons, that is to say, because carrying the pregnancy to term would cause economic or social hardship or difficulties. The wording of such legal provisions varies, with most laws simply referring to general social, economic or living conditions, sometimes of both the woman and any future or existing children. There are also instances, as in India, where abortion is not explicitly permitted on social and economic grounds but the law does specify that, in the determination of whether the continuation of the pregnancy would involve a risk of injury to the health of the pregnant woman, the physician may take into account the woman's actual or reasonably foreseeable socio-economic environment. As is suggested by India's law, it is often difficult to detect major differences between the laws of countries that permit abortion when necessary in order to preserve the physical and mental health of the pregnant woman and interpret such grounds very liberally and those of countries in which abortion is available for social or economic reasons. Most countries that allow abortions to be performed on social and economic grounds interpret those grounds liberally.

Upon request

A number of countries, mostly in Eastern Asia, Europe and Northern America, permit abortion to be performed

at the request of the pregnant woman who, rather than need to justify to a physician or committee her desire to have an abortion, has only to make a request. Sometimes, before the request is granted or the abortion performed, the pregnant woman must undergo counselling, or wait for a certain number of days. The difference between laws permitting abortion on social and economic grounds and those permitting abortion upon request is often merely a matter of philosophy and emphasis, since in both cases women may have the same access to abortion. For example, abortion laws in Belgium, France and Germany require a woman to be in a state of crisis or distress to obtain an abortion. Since the final determination as to what constitutes such a state is left to the pregnant woman, an abortion can, in effect, be obtained upon request.

D. Global analysis

Based on information available for 193 countries, the overwhelming majority of countries (98 per cent) permit abortions to be performed to save the pregnant woman's life. In a number of those countries, criminal laws specifically allows abortion on these grounds. In others, however, one must look to other law or court decisions to determine if there are exceptions to a general prohibition of abortion. For example, in Honduras, the Code of Medical Ethics permits abortion to save the woman's life; in Nepal, the rules of the Medical Council have been so interpreted as to permit abortion in various situations; and in Ireland the Supreme Court has ruled that an abortion can be performed to preserve the life of the pregnant woman. In yet other countries, such as the Central African Republic, the Dominican Republic, Egypt and the Philippines, the criminal-law principle of necessity can be invoked to exempt from punishment those who have performed an abortion to save a pregnant woman's life.

Abortion to preserve the woman's physical health is permitted in 119 countries (62 per cent). Fewer (95) countries (or 50 per cent) allow abortion to preserve the woman's mental health, and 81 countries (42 per cent) permit it when pregnancy has resulted from rape or incest. The number declines to 78 countries (40 per cent) when there is the possibility of foetal impairment and to 55 countries (29 per cent) when there are economic or social reasons. Lastly, in 41 countries (21 per cent), abortion is available upon request.

An examination of abortion policies in terms of population discloses that 96 per cent of the world population live in countries that permit abortion to save the woman's life, 75 per cent in countries permitting abortion to preserve the woman's physical health, 69 per cent in countries where abortion is legal to preserve the woman's mental health and 72 per cent in countries where abortion is allowed when the pregnancy results from rape or incest. The proportion of the world population declines to 64 per cent in respect of countries where abortion is allowed when there exists the possibility of foetal impairment and to 44 per cent in respect of countries that permit abortion for economic or social reasons. Lastly, abortion is available upon request to 38 per cent of the world population.

E. Regional perspective

Grouping the 193 countries by level of development reveals that abortion policies are significantly more restrictive in the developing than in the developed countries. Only 9 per cent of the developing countries permit abortion for economic or social reasons, compared with 77 per cent of the developed countries. Likewise, 6 per cent of the developing countries permit abortion "upon request", compared with 59 per cent of the developed countries.

In Africa, more than one third (38 per cent) of countries permit abortion only to save the mother's life. Two countries, Cape Verde and Tunisia, permit abortion upon request, and the remainder allow abortion under certain circumstances.

The region is characterized by an almost total lack of data on the incidence of induced abortion. What little information exists is based on a number of small-scale hospital-based surveys. The data clearly illustrate the unmet need for family planning services among certain population groups. One such unserved group are adolescent schoolgirls facing expulsion from school and the social stigma attached to an out-of-wedlock birth. In a number of African countries, contraceptives are prohibited to unmarried women and women under age 21.

In other countries, family planning services emphasize birth-spacing and thus do not address the needs of young unmarried women.

Given the illegality of abortion in most countries in Africa, the procedure is often performed under unsafe, unsanitary and life-threatening conditions. In addition, the fact that many women attempt to perform an abortion on themselves results in large numbers of incomplete abortions. As a result of complications from abortion, mortality rates from unsafe abortion are highest in the African region, with an estimated 83 deaths per 100,000 live births (table 39). The rate reaches 101 deaths per 100,000 live births in Eastern Africa, and is even higher in Western Africa (104 deaths). It is estimated that up to 50 per cent of the scarce resources of some hospitals are devoted to the treatment of patients admitted for complications of unsafe abortion (World Health Organization, 1994).

The situation in Nigeria, the most populous country in Africa, is typical. Abortion is permitted only to save the pregnant woman's life, and illegally induced abortion is a major cause of maternal mortality. Reports from hospital surveys indicate that the highest risk group comprises unmarried girls under age 20 who are either in school or unemployed. That significant number of incomplete abortions are regularly treated in hospitals in Nigeria indicates a high incidence of illegal and poorly performed abortions (United Nations, 1993).

In Gabon, as in many other former French colonies, abortion is also illegal except to save the life of the pregnant woman. The incidence of infertility in Gabon is also due to complications arising from clandestine abortions; it is estimated that 70 per cent of infertility in Gabon is related to secondary sterility caused by sexually transmitted diseases and abortion (United Nations, 1993).

Tunisia is one of only two countries in Africa that permits abortion upon request. Abortion services are subsidized by the Government in the same manner as other medical services and are free of charge in public hospitals for those entitled to free health care. However, the abortion rate of 11 legally reported abortions per 1,000 women of reproductive age is relatively low (United Nations, 1995a).

In Asia, which has the largest number of abortions, there is a considerable diversity of experience. The region is divided almost equally into three categories of countries: countries in which the availability of abortion is very restricted; countries that permit abortion upon request; and those that permit abortion under certain circumstances.

Although abortion is available upon request in China, it is not intended as a method of family planning. However, while the contraceptive prevalence rate reached 83 per cent in China in 1992, it has been accompanied by a high rate of contraceptive failure, leading many women to resort to induced abortion. The Government has often expressed its concern over the high incidence of induced abortion and is seeking to lower it through the provision of contraceptives, an information and education campaign and a system of economic and social incentives and disincentives.

An emerging problem in a number of Asian countries is the practice of sex-selective induced abortion of the foetus after prenatal sex determination. In such countries as China and the Republic of Korea, sex ratios at birth have risen far beyond biologically normal levels. Reported ratios tended to be normal at first births; however, that fact that sex ratios at second and higher parities were much higher than the normally expected ratio, suggests that, because of son preference, a significant number of female foetuses had been aborted following sex determination. In China, for example, where the Government has an active programme to encourage antenatal examination of pregnancies as a means of screening for birth defects, technologies such as amniocentesis and chorionic biopsy are becoming widely available, particularly in cities and towns. While government policy prohibits the use of any of these technologies for antenatal sex determination, their widespread availability increases the possibilities for misuse (Hull and Xingyan, 1993).

In the Republic of Korea, son preference is an important factor in the increase of the sex ratio through selective abortion. Moreover, the imbalance of males and females at birth and young ages in the Republic of Korea is in part attributable to the fact that the pace of fertility reduction has been faster than that at which the parental preference for males has been weakening, with the result that parents of small families manifest a strong desire to have male children (Lee and Cho, 1992). In India, private clinics and mobile teams promote prenatal sex examination by advertising in local newspapers, in spite of government prohibition of the practice.

Despite the restrictive nature of the abortion law in Bangladesh, menstrual regulation services are provided through the national family planning programme. The Government does not consider that this service contravenes the abortion law, since menstrual regulation is provided as a family planning method, not as an abortifacient. An important justification for the provision of menstrual regulation has been the high rates of hospitalization due to complications of induced abortion and the high levels of maternal mortality resulting from septic abortion. Slightly over half of all admissions to gynaecology units of large urban hospitals resulted from complications of induced abortion and it has been estimated that about one fourth of the 24,000 annual pregnancy-related deaths in Bangladesh are due to complications from unsafe abortion (Whittaker and Kabir, 1990).

Another large Asian country that has introduced menstrual regulation is Indonesia, where the abortion legislation is relatively restrictive, but not strictly enforced. Initially introduced only to reduce the detrimental consequences of clandestine abortions due to contraceptive failure, menstrual regulation is currently being offered for wider indications. A health law went into effect in 1992 that, while not explicitly mentioning abortion, suggests that a pregnancy can be terminated if the pregnant woman's life is threatened.

Among the countries of Western Asia where Islamic law prevails, abortion is addressed in the personal statutes of the Koran. While Islam forbids the killing of the soul, the various schools of Islam disagree as to when a foetus acquires a soul. Some scholars identify it as 40 days, while others specify 120 days.

In Europe, the situation can best be characterized by the comparatively wide accessibility to abortion services (more than one half of the countries in Europe allow abortion upon request), accompanied by large differentials between Western and Eastern Europe in the incidence of abortion. The situation in Western European countries, which is one marked by low rates of abortion, is in sharp contrast to the situation prevailing in the countries of Eastern Europe, which traditionally have had and continue to have high abortion rates.

Several countries in the region are noteworthy. The Netherlands is often cited as an example of a country where the availability of abortion upon request has not resulted in an increase in the incidence of abortion. The abortion rate in the country of 5.2 per 1,000 women aged 15-44 in 1990 is one of the lowest among countries that permit abortion upon request. It should be noted, moreover, that a sizeable proportion of women obtaining abortion in the Netherlands are nationals of neighbouring countries.

In Ireland where, unlike most other European countries, abortion is only permitted to save the mother's life, the abortion issue has generated a great deal of controversy. In the latest round of legal skirmishing, the Irish Supreme Court in March 1995 upheld the constitutionality of a law guaranteeing the right to information on foreign abortion clinics to Irish women who may want to travel abroad for an abortion. It is estimated that at least 4,000 Irish women obtain abortions in the United Kingdom annually.

As a consequence of the major political, social and economic changes that have occurred in the region, a number of countries have experienced considerable legislative, judicial and regulatory activity in the sphere of abortion policies. In Germany, for instance, the legal status of abortion has been in a state of flux since 1990 when the treaty of German unification left different abortion laws in the two parts of the country. A uniform abortion law was passed in 1992, which came under attack for being too liberal and was almost immediately suspended by the Constitutional Court. The law was subsequently declared unconstitutional in 1993. Lastly, in June 1995, the German Parliament enacted legislation declaring all abortions illegal except those performed for therapeutic purposes, but allowing abortions to be performed during the first 12 weeks of pregnancy without prosecution if the pregnant woman obtains counselling designed to protect unborn life and waits for three days. The abortions of poor women will be subsidized by the State.

Among the countries of Eastern Europe, there are a number of recent developments. Prompted by the detrimental impact of illegal abortion on maternal and child health in 1991, the Ministry of Health of Albania significantly broadened the grounds for permitting abortion so as to include abortion upon request. Similar developments have taken place in Romania and Bulgaria. In Poland, however, legislation was enacted in 1993 that restricts permission for abortion to medical, juridical and eugenic grounds. Although in 1994

Parliament approved an amendment to this legislation allowing abortions on socio-economic grounds, the President of Poland refused to sign the amendment into law. In Hungary, a new law was adopted in 1992 allowing a woman in a state of crisis to obtain an abortion after undergoing counselling and waiting for three days. The law, in essence, retains the legal status of abortion in effect before its enactment.

Following the dissolution of the USSR, there has been a substantial increase in the amount of public discussion concerning the very high rates of induced abortion in the successor States, particularly the Russian Federation. These discussions have been evoked for a variety of political purposes, with various church groups as well as pro-life groups becoming increasingly vocal in their opposition to abortion. Induced abortion remains the primary method of fertility control in the Russian Federation (Popov, 1995). Moreover, because abortion services are inadequate, significant numbers of unsafe abortions continue to be performed (ibid.).

In Latin America, abortion is widely practised, despite legal restrictions. Of the 33 countries in the region, 8 permit abortion only to save the pregnant woman's life. Abortion upon request during the first trimester is available only in Cuba. With an estimated 4.6 million unsafe abortions performed each year, the region has the highest abortion rate in the world (table 39).

In Argentina, where abortion is generally prohibited, it is estimated that one abortion occurs for every two live births, this being one of the highest rates in the world (Sachdev, 1988). The requirement of legal proof of pregnancy as a precondition for prosecution makes prosecution of illegal abortions rare. It is estimated that a similar ratio of abortions to live births exists in Chile, where abortion is strictly prohibited. The rising incidence of clandestine abortion has been attributed, in part, to reductions in health service staff, particularly midwives, who were providing the bulk of family planning services. In both countries, studies have indicated that complications from unsafe abortion accounted for about 40 per cent of maternal deaths (United Nations, 1992).

In Brazil, many women have reportedly attempted to use misoprostol, a prostaglandin marketed for the treatment of gastric ulcer, to terminate unwanted pregnancies. Abortion is permitted only when the life of the mother is seriously threatened or in cases of rape. According to two hospital-based studies, the majority of women receiving hospital treatment following an induced abortion in 1991 had used misoprostol, primarily because it was less expensive than traditional methods of illegal abortion and because the women could administer the drug themselves (International Planned Parenthood Federation, 1993). Misuse of the drug has been blamed on inadequate knowledge of and access to family planning services, the illegality of abortion and lax controls over the distribution of prescription drugs.

In Cuba, a shortage of contraceptives has resulted in a large number of unwanted adolescent pregnancies that are terminated by abortion. The Government views as excessive the rate of 50-60 abortions per 1,000 women. Abortion is available upon request and free of charge, as is the case with all health-care services. Guaranteeing an adequate supply of high-quality locally produced contraceptives has been a major obstacle confronting the maternal and child health and family planning programme of the country. One of the Government's objectives is to improve national contraceptive technology, in order to achieve self-sufficiency in the manufacture of oral contraceptives and to broaden the mix of contraceptive methods through the provision of intrauterine (IUDs) devices and injectables.

In the United States, where abortion is legal upon request during the first two trimesters of pregnancy, the issue of abortion has been characterized by a highly visible and protracted public debate, which in a few cases has degenerated into acts of violence. In 1994, legislation was passed that makes it a federal crime to blockade or attack abortion clinics, their operators or their patrons.

BOX 4. ABORTION POLICY IN THE NETHERLANDS

The Netherlands, a country with one of the world's lowest abortion rates, has often been cited as a model to be emulated. The incidence of induced abortion—5.2 per 1,000 women aged 15-44 in 1990—is not only low but relatively stable as well, owing mainly to the high contraceptive prevalence rate (80 per cent in 1993 for women in a formal marriage, or consensual union).

Significant changes have occurred in regard to reproductive behaviour in the Netherlands over the past 30 years. Family planning was traditionally discouraged because it was regarded as being contrary to the objectives of marriage and as promoting promiscuity. As a result, contraceptives were not readily available and could not be advertised in the media until 1969. However, the introduction of the pill in 1964 and its proved high reliability led to the widespread acceptance and practice of family planning. Since around 1965, family planning services have routinely been offered as part of general health-care services.

Even though family planning services had become fully accepted in the Netherlands, abortion remained an unresolved problem throughout much of the 1960s and 1970s. The main issue centred around the interpretation of the legal provision for allowing abortion on medical grounds. During the course of the abortion debate, the Dutch Psychiatric Association expressed the opinion that it was the woman alone who could best determine if an abortion was necessary. This situation virtually assured the availability of abortion upon request, even before the law legalizing abortion was passed in 1981.

Since November 1984, a Netherlands woman has been able to obtain an abortion free of charge under the Government-sponsored national health insurance system. Foreign-born women make up a sizeable proportion of women undergoing induced abortion in the Netherlands. Among Dutch nationals, the population most at risk for an unwanted pregnancy are women in age group 20-30. More than one third are married and, typically, have mainly used condoms, rhythm or withdrawal as their preferred contraceptive methods. Following an induced abortion, most women choose the pill, an intrauterine device or sterilization.

Sources: Abortion Policies, A Global Review, vol. II, *Gabon to Norway* (United Nations publication, Sales No. E.94.XIII.2) and annex table A.23.

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V. MATERNAL MORTALITY AND MORBIDITY*

Levels of maternal mortality in industrialized and developing countries show a greater disparity than any other public-health indicator, far exceeding differences in infant and child mortality rates, which are most often taken as the measure of comparative disadvantage. Although there have been significant declines in infant and child mortality rates in recent years, the available evidence indicates that the same may not be true for maternal mortality. As the end of the twentieth century approaches, 1 woman in 57 still dies as a result of pregnancy-related complications in the developing world and the figure rises to 1 in 20 in many parts of Africa. By contrast, the average lifetime risk of dying of a pregnancy-related cause in Northern Europe is 1 in 10,000.

For many years, maternal mortality was neglected in large part because of ignorance about the dimensions of the problem and its impact on health and development of individuals, families and communities. In countries with the highest mortality, most deaths go unrecorded and even if the fact of death is recorded, the cause is seldom known.

Most of the evidence of high maternal mortality is fragmentary and indirect. Only a minority of the world population lives in countries with good systems of vital registration that regularly report maternal deaths. Elsewhere, a variety of information sources have to be used to build up a picture of levels and trends of maternal mortality.

A. DEFINITION AND CLASSIFICATION

Although intuitively one would expect the definition of maternal death to be a simple issue, in actual practice matters are not that straightforward. If the definition of a maternal death is to include all deaths due to pregnancy and childbirth, it must include those that occur before childbirth (such as through abortion and ectopic pregnancy), and those taking place during childbirth (such as through ante-partum, intra-partum and post-partum haemorrhage), as well as deaths taking place some time after the event of childbirth (such as through sepsis). It must also include deaths due to pre-existing conditions aggravated by pregnancy (such as hepatitis).

The tenth revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) defines maternal death as the death of a woman while pregnant or within 42 days of the termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (World Health Organization, 1992b). This definition is unchanged from that in the International Classification of Diseases, 1975 Revision (ICD-9) (World Health Organization, 1977).

With regard to the time of death, the 42-day period after pregnancy termination was sanctioned historically by a variety of practices, both religious and cultural. Modern life-sustaining procedures and technologies can, however, prolong dying and delay death. It is likely that, even before the era of modern medicine, some maternal deaths took place beyond the six-week interval but the proportion was probably very small. Medical procedures may increase that proportion but it is likely to remain fairly small although by no means negligible. For example, the Centers for Disease Control report that 29 per cent of maternal deaths in Georgia, United States of America, over the period 1974-1975 occurred after the 42 days following pregnancy termination and 6 per cent after 90 days post-partum (Koonin and others, 1988). For this reason, ICD-10 introduced a new category, namely, the late maternal death, which is defined as the death of a woman from direct or indirect obstetric causes, more than 42 days but less than one year after termination of pregnancy.

A different set of problems arises in connection with the cause of death. Maternal deaths should be divided into two groups:

* Prepared by the World Health Organization, Geneva.

(*a*) *Direct obstetric deaths,* which are those resulting from obstetric complications of the pregnant state (pregnancy, labour and the puerperium), from interventions, omissions (in terms of treatment, for example) or incorrect treatment, or from a chain of events resulting from any of the above;

(*b*) *Indirect obstetric deaths,* which are those resulting from a previously existing disease or a disease that developed during pregnancy and that was not due to direct obstetric causes but was aggravated by the physiological effects of pregnancy.

The drawback of the ICD definition is that maternal deaths may escape being so classified because the precise cause of death cannot be given, even though the fact of the woman's having been pregnant is known. Such underregistration is frequent in both developed and developing countries. Even in countries where all or most deaths are medically certified, maternity-related mortality can still be grossly underestimated. Record-linking and other studies have shown misreporting of between 25 and 70 per cent of maternal deaths (Bouvier-Colle and others, 1991; Smith and others, 1984; and May, Buescher and Murray, 1991).

Deaths from "accidental or incidental" causes have historically been excluded from maternal mortality. However, in practice, the distinction between incidental and indirect causes of death is difficult to make. Some deaths from external causes—for example, suicide or homicide—may be attributable to the pregnancy itself (Fortney and others, 1984). A study in the United States found that several deaths of pregnant or recently pregnant women had been the result of physical violence related to the fact of pregnancy and that, had they been included as maternal deaths, the overall maternal mortality ratio would have increased by 8 per cent (Chavkin and Allen, 1993).

In countries where maternal mortality is high, the bias introduced by the inclusion of external causes is usually low. In Matlab, rural Bangladesh, for example, where the overall maternal mortality ratio was estimated at 570 per 100,000 live births in 1969-1970, it was found that 90 per cent of the deaths of women who were pregnant or had been pregnant within the preceding 90 days, were due to direct obstetric causes (Chen and others, 1974). In an area in Egypt, with a maternal mortality ratio of 263 per 100,000 live births, 87 per cent of deaths of pregnant women were due to direct obstetric causes (May, Buescher and Murray, 1991).

B. Measures of maternal mortality

Several distinct measures are used in reporting maternal mortality. The most common maternal mortality measure is the maternal mortality ratio—the number of maternal deaths during a given time period per 100,000 live births during the same time period.[1] The appropriate denominator for the maternal mortality ratio would be the total number of pregnancies (live births, stillbirths, premature and term deliveries, induced and spontaneous abortions, ectopic and molar pregnancies). However, this figure is available only rarely both in developing countries where most births in the world take place, and in developed countries. Hence, the general use of live births in the denominator.

The maternal mortality rate, which is the number of maternal deaths in a given period per 100,000 women of reproductive age during the same time period, measures both the obstetric risk and the frequency with which women are exposed to that risk.

A third measure of maternal mortality, which measures both obstetric risk and exposure to the risk, is the lifetime risk of death (LTR). The lifetime risk of death measures the probability of a woman's dying from pregnancy-related causes by the end of the reproductive period.[2]

Another measure of maternal mortality is the proportion of all deaths of women of reproductive age that are due to pregnancy-related causes. In many developing countries between one fourth and one third of deaths of females between ages 15 and 49 are maternal. By contrast, the corresponding figure in developed countries is usually below 1 per cent.

C. Measurement of maternal deaths

Issues related to definitions, rates and ratios apart, counting the number of maternal deaths is in itself extremely difficult. Many different methods are available for measuring maternal mortality, ranging from official vital registration systems to small-scale community surveys. Each has advantages and disadvantages but, as

a general rule, accurate measurement of maternal mortality at national level requires an expenditure of resources and effort that is often simply not available in developing-country settings.

Most vital registration measures of maternal mortality in both developed and developing countries are underestimates. The reasons for this vary according to certification practices and the degree of sophistication of the vital registration system. Although the definition of maternal death in ICD-9 and ICD-10 is scientifically incontrovertible, in practice maternal deaths often escape being classified according to the definition for two reasons: either the precise cause of death cannot be given even though the fact of the woman's having been pregnant is known; or, while the cause of death (for example, kidney failure) is known, the fact of the pregnancy may not have been noted on the death certificate.

Cause of death is routinely reported for only 78 countries or areas, covering approximately 35 per cent of the world population. The new category of "pregnancy-related death" defined in ICD-10 is intended for use in countries that wish to count maternal deaths but where the cause of death cannot be identified precisely. This will require, however, the inclusion on all death certificates of a question on the pregnancy status of the deceased woman. Only in a few countries does the death certificate include such a question at present.

Where good vital registration does exist, the biases are usually due to incorrect classification of the cause of death. There may be many social, religious, emotional or practical reasons for not classifying a maternal death as such. Deaths of unmarried women, in particular those resulting from the complications of abortion, may often be classified under another cause to avoid embarrassing the surviving family; this would be all the more likely if the abortion was illegal. The extent of this type of underreporting can be considerable.

In countries with low levels of maternal mortality, few maternal deaths actually take place in obstetric departments of large hospitals because when life-threatening conditions such as acute renal failure arise, the patient is usually transferred to another specialty department. If she dies there, the death will be certified by a non-obstetric specialist and the cause of death appearing on the certificate may very well not mention the obstetric condition that triggered the fatal sequence of events. By linking death certificates of women in the childbearing ages with the birth certificates of their offspring, researchers reported a 50 per cent increase in the number of known maternal deaths in Georgia, United States, in 1975 and 1976, over the figure obtained from vital registration. A study in North Carolina, United States, which used computer-matching of birth and foetal death records with death certificates, calculated a maternal mortality ratio of 24 per 100,000 live births compared with the 9.5 indicated by vital registration. Only part of the discrepancy can be explained by the fact that the former counted maternal deaths occurring up to one year after the termination of pregnancy (May, Buescher and Murray, 1991).

Intermediate between countries with good vital registration and those where there is incomplete or no coverage of registration, there are many countries where registration of deaths is fairly complete but registration of cause of death is poor (World Health Organization, 1993a). Maternal mortality rates based on data derived from such systems can be extremely misleading–in some countries, as many as 63 per cent of women's deaths are without specified cause.

Where vital registration is incomplete or non-existent, other sources of information and other methods have to be used. A variety of approaches have been tried with varying success. Each method has its advantages and its drawbacks and not all approaches are feasible in all settings. It is possible to visualize a hierarchy of situations depending upon the sort of records available and the degree of contact between the health system or other infrastructure and the population of childbearing women. The situations will range from that in countries such as Bangladesh, where some 95 per cent of the births are attended by untrained traditional birth attendants or family members and no civil registration existed until recently (Bangladesh, 1985), through those in countries such as the Niger, with good public health care records and poor civil registration (Thuriaux and Lamotte, 1984), Brazil, with 75 per cent coverage of civil registration, and India, with a 1 per cent sample registration system (India, 1981; 1982).

Maternal mortality can be measured by incorporating questions into ongoing (large-scale) household inquiries. It is possible to ask questions on pregnancy status and to make one or several repeat visits later to ascertain the pregnancy outcome (Greenwood and others, 1990). Alternatively, retrospective surveys ask questions about deaths of female household members during a specified

time period and whether the death was associated with pregnancy or childbirth. Respondents can be husbands, parents, other family members, neighbours or community health workers. Such a survey in Addis Ababa, Ethiopia, to identify births, abortions and deaths over a defined period of time, was based on a sample of households (Kwast and others, 1985). There was then a follow-up and details of care received, and social and other characteristics of the women and households, as well as circumstances and causes of deaths, were recorded. A sample of nearly 10,000 pregnancies yielded 45 deaths and an estimated maternal mortality ratio of 480. Nevertheless, at the 95 per cent level of significance this gives a sampling error of about 30 per cent, in other words, the ratio could lie anywhere between 370 and 660.

A variant of the retrospective approach asks household members about possible maternal deaths occurring in other households and subsequently visits those households to interview relatives of the deceased women. This approach was used in Kenya where women interviewed in a child survival survey were asked whether they knew of any women who had died from maternal causes in the preceding year (Boerma and Mati, 1989). The technique, known as networking, is promising for use in well-defined geographical areas.

The major drawback of using household surveys is the expense involved. Household surveys are not a cost-effective way of measuring maternal mortality. However, it may be possible to add on questions on maternal deaths to demographic or household surveys. A recently developed technique that makes the most of the information so obtained is the *sisterhood method.* This methodology offers a solution to the problem of defining precisely a population group about which a respondent can usually provide information while at the same time minimizing the number of households that must be visited in order to obtain information on a large number of women (Rutenberg and Sullivan, 1991). The basic methodology asks all adult women in a household survey questions about the survival of their sisters. This information is converted into lifetime chances of dying from maternal causes and hence into estimates of maternal mortality (Graham, Brass and Snow, 1989). The sisterhood method can be used for both direct and indirect estimations of maternal mortality.

The sample size required for the sisterhood method is large (although less than that is required for a household survey) and the method yields no information on the causes of maternal deaths or of the circumstances surrounding them, although efforts are under way to obtain such information using sisterhood techniques. Nonetheless, information derived using sisterhood techniques is of great value, especially where other community-based surveys are unavailable and vital registration non-existent.

The sisterhood method has proved successful in some countries, but less so in others. One drawback is that the methodology was developed for use in specific circumstances where there were strong cultural ties between siblings (usually sisters) and where siblings could be expected to be fully aware of the vital events in each other's lives. Where such cultural ties are less strong, the method is likely to be less effective and may underestimate overall mortality, including pregnancy-related mortality.

One of the most successful ways of measuring the extent and causes of maternal mortality is through reproductive age mortality surveys (RAMOS), which identify and investigate the causes of all deaths of women of reproductive age. This technique has been used successfully in countries as different as Guinea (Thonneau and others, 1992), Honduras (Castellanos and others, 1991) and Jamaica (Walker and others, 1986). In Honduras, the maternal mortality ratio was found to be four times that based on civil registration. How the deaths are identified differs according to the records and/or the types of knowledgeable informants available. All successful studies use multiple and varied sources of information, such as civil registers, hospitals and health centres, community leaders, schoolchildren, religious authorities, undertakers, cemetery officials and so forth. No single source identifies all the deaths.

Where reasonable civil registration systems exist, death certificates alone are a useful starting point for identifying deaths of women of reproductive age. This approach was successful in some countries in Latin America and the Caribbean in the 1960s and lately has been used widely elsewhere. A panel of medical specialists then establishes whether or not the death was pregnancy-related from hospital records and/or from symptoms reported by the family of the deceased.

RAMOS-type studies are generally considered the best method for estimating maternal mortality. However, it has to be stressed that they can be so viewed only when

considerable efforts are expended on identifying all maternal deaths using multiple sources of information.

In the absence of civil registration or other population-based data, many researchers use hospital data to estimate maternal mortality. There are limitations to this approach and estimates derived from hospital data alone tend to be unrepresentative. In general, the smaller the proportion of births taking place inside the hospital, the greater the discrepancy between the true, usually unknown, community maternal mortality ratio and the hospital maternal mortality ratio. The reason for the discrepancies between the two is either that the hospital maternal mortality ratio numerator (the number of women who died in the hospital) does not denote a representative sample of all maternal deaths, or that the denominator (the number of women who gave birth in the hospital) does not denote a representative sample of all women giving birth, or that both numerator and denominator are non-representative.

D. Levels of maternal mortality

Levels and trends in maternal mortality in developed countries from 1970 to 1993, based on registered data, are presented in table 41. Maternal mortality for the developed countries has in general been below 10 per 100,000 live births since 1990. There are, nonetheless, considerable intercountry variations, the most striking being the case of Romania which experienced a sharp increase in abortion-related deaths after it tightened a previously liberal law in 1966. Highly restrictive legislation on termination of pregnancy, combined with a pronatalist population policy that severely restricted the availability of contraception, resulted in increasing maternal mortality (figure 24). Following a reversal of policy in 1989, maternal mortality has fallen by more than half, but still remains at about 60 per 100,000 live births. Maternal mortality ratios for the countries of the former Union of Soviet Socialist Republics (USSR) are also somewhat higher than for other developed countries.

There has been some concern about possible increases in the levels of maternal mortality in Eastern Europe and in the countries with economies in transition due to shortages of drugs and equipment following economic reforms. However, because of statistical fluctuations in the reported ratios and also possibly because of more accurate reporting, it is not clear whether any apparent increases in the ratios are a reflection of reality or a result of reporting changes.

Table 42 shows maternal mortality ratios in developing countries for which vital registration is believed to be fairly complete. Substantial declines have occurred in Mauritius and in countries in Latin America and the Caribbean, although the figures presented here are likely to be subject to under-reporting and bias because of misclassification of maternal deaths. In Argentina, for example, the maternal mortality ratio fell by over 40 per cent between 1975-1979 and 1991. In Chile, it fell by over 50 per cent in the 10 years between 1975-1979 and 1985-1989, largely as a result of increased availability of contraception and a corresponding fall in unsafe abortions. In Mexico, between 1975-1979 and 1992, the ratio fell by nearly 60 per cent. In Barbados, maternal mortality fell by more than 90 per cent in a 25-year period, between 1970-1974 and 1985-1989.

Looking back even further at historical records, some countries have achieved particularly dramatic falls in maternal mortality. In Chile, in 1960, the maternal mortality ratio was 299 per 100,000 live births. Ten years later it had fallen to 168, a reduction of 44 per cent. Ten years later it had again fallen, by a further 56 per cent to 73 per 100,000 live births. In Sri Lanka, the maternal mortality ratio was 580 per 100,000 live births in 1951 and 10 years later fell to 260, a drop of more than half. It fell by half again over the subsequent decade. Since the 1970s, further falls in maternal mortality have occurred at a slower pace. However, the substantial declines achieved during the 1950s and 1960s in Sri Lanka and elsewhere led to the hope that similar results could be achieved in other countries with high levels of maternal mortality and to the goal formulated at the International Safe Motherhood Conference held in Nairobi in 1987—a reduction by half of the 1990 levels of maternal mortality by the year 2000 (Starrs, 1987).

However, because of the difficulty of measuring maternal mortality and the almost total lack of reliable estimates in countries where the problem is thought to be most acute, it has been impossible either to establish good baseline estimates or to assess progress achieved towards the goal. In an attempt to fill the information gap, the WHO Maternal Health and Safe Motherhood Programme has collected all available information and studies on maternal mortality for all countries and assembled the information in a database that also covers

TABLE 41. MATERNAL MORTALITY RATIO, DEVELOPED COUNTRIES, 1970-1993
(Per 100,000 live births)

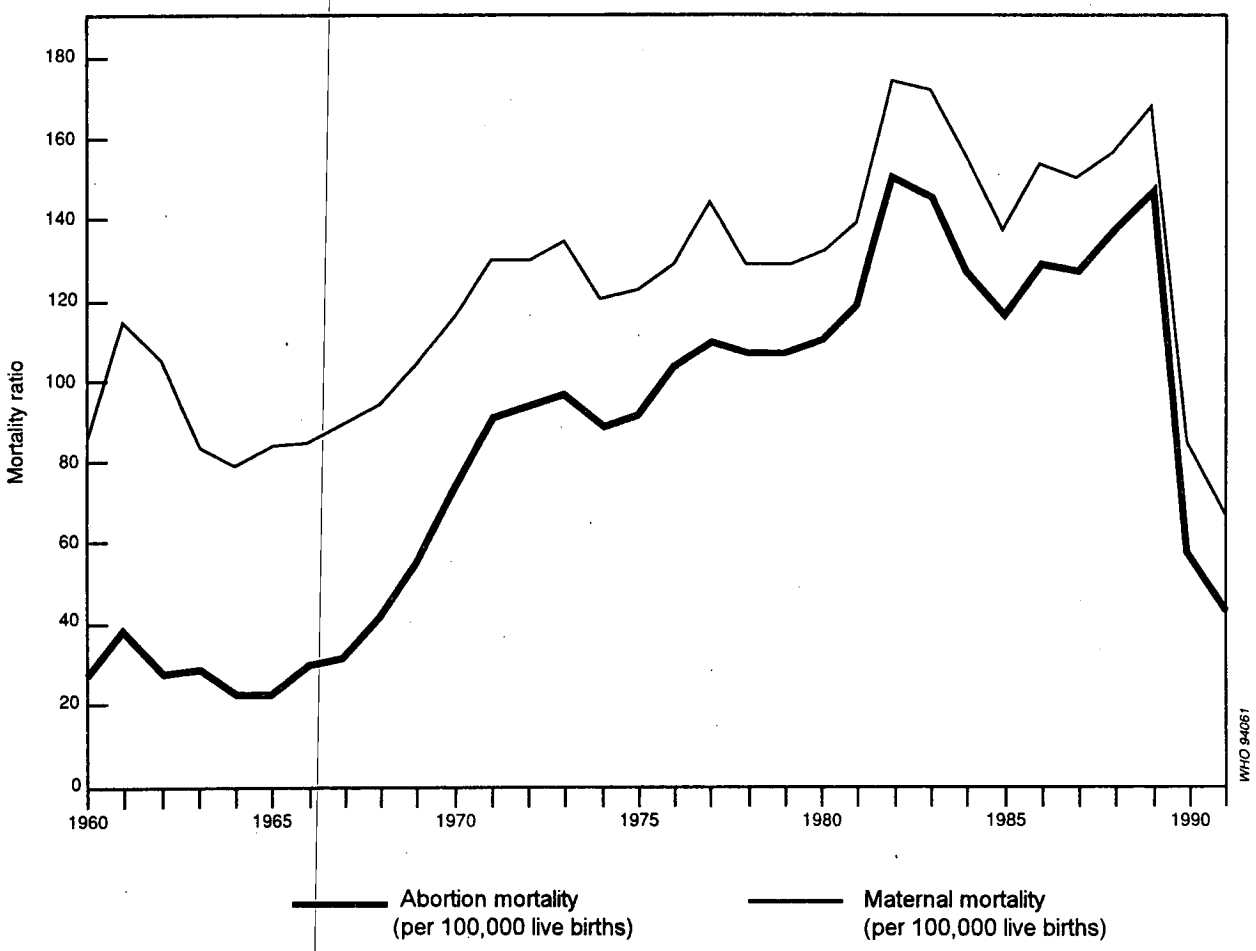
Region and country	*Maternal mortality ratio*							
	1970-1974	*1975-1979*	*1980-1984*	*1985-1989*	*1990*	*1991*	*1992*	*1993*
Asia								
Eastern Asia								
Japan	42.1	24.7	17.8	12.4	8.6	9.0	9.2	7.7
Europe								
Eastern Europe								
Belarus	..	..	..	25.0[a]	22.0	..	21.1	20.4
Bulgaria	34.6	25.5	20.1	17.0	14.3	8.3	15.7	10.7
Czechoslovakia (former)	17.1	12.8	10.2	9.7	7.6	13.0	..	..
Czech Republic	..	..	..	11.0[b]	8.4	13.1	9.9	11.6
Hungary	39.5	20.9	19.2	17.4	20.7	12.6	9.9	18.8
Poland	21.0	14.6	14.2	12.4	12.8	12.8	9.9	11.8
Republic of Moldova	..	..	..	35.0[a]	44.0	..	..	52.0
Romania	126.3	132.0	152.0	152.8	83.0	66.5	60.3	..
Russian Federation	..	..	..	49.5[c]	47.4	52.4	50.8	51.6
Ukraine	..	..	..	38.0[a]	..	29.8	31.3	..
Northern Europe								
Denmark	5.5	6.2	5.6	5.3	1.6	3.1	7.4	7.4
Estonia	..	..	..	24.0[a]	31.4	31.1	22.2	33.0
Finland	9.9	7.7	3.1	6.4	6.1	3.1	4.5	3.1
Iceland	23.0	—	—	4.7	21.0	—	—	—
Ireland	26.7	13.0	7.2	3.5	3.8	7.6	5.8	..
Latvia	..	..	..	42.4[c]	23.7	31.8	31.7	30.0
Lithuania	..	..	..	24.0[c]	22.9	19.6	20.5	8.6
Norway	9.5	9.5	3.9	5.5	3.3	8.2	6.7	..
Sweden	7.2	5.1	4.3	5.6	3.2	4.0	—	..
United Kingdom	15.8	12.0	9.0	6.9	7.6	6.9	6.7	..
Southern Europe								
Albania	..	..	..	27.6[d]	..	..	5.3	..
Greece	28.2	18.6	13.1	5.5	1.0	2.9	5.9	1.0
Italy	44.8	19.4	10.7	6.1	8.6	4.9	..	..
Malta	0.0	17.5	17.9	7.4	—	18.9	—	19.4
Portugal	57.9	40.0	18.7	9.7	10.3	12.0	9.6	6.1
Slovenia	..	..	..	10.4	8.8	4.6	5.0	5.1
Spain	29.6	15.8	9.0	4.7	5.5	3.3	..	..
Yugoslavia (former)	41.6	20.8	20.2	14.6	5.7	..	..	..
Western Europe								
Austria	25.0	17.1	10.9	6.9	6.6	7.4	4.2	4.2
Belgium	17.1	9.9	7.5	4.2	..	..	..	..
France	24.4	16.1	14.3	10.1	10.4	11.9	12.9	..
Germany[e]	43.1	28.7	16.1	8.5	9.1	8.7	6.7	5.5
Luxembourg	48.4	49.8	—	4.6	20.3	—	—	—
Netherlands	12.3	9.1	7.4	7.0	7.6	6.0	7.1	..
Switzerland	20.7	10.8	6.7	6.4	6.0	1.2	4.6	6.0
Northern America								
Canada	15.0	6.6	4.8	4.0	2.5	3.0	4.8	..
United States of America	17.9	11.1	8.3	7.6	8.2	7.9	..	..
Oceania								
Australia	15.9	8.4	8.5	5.3	6.5	3.5	3.5	..
New Zealand	21.0	14.9	11.8	14.5	6.6	15.0	8.4	..

Sources: World Health Organization, *World Health Statistics Annual, 1987* (Geneva, 1987), table 9; *World Health Statistics Annual, 1988* (Geneva, 1988), table 10; *World Health Statistics Annual, 1989* (Geneva, 1990), table 11; *World Health Statistics Annual, 1990* (Geneva, 1991), table 9; and *World Health Statistics Annual, 1991* (Geneva, 1992), table 10; *World Health Statistics Annual, 1992* (Geneva, 1993), table D-1; *World Health Statistics Annual, 1993* (Geneva, 1994), tables D-1 and D-6; *World Health Statistics Annual, 1994* (Geneva, 1995), table B; and World Health Organization, Maternal Health and Safe Motherhood Programme Database.

NOTE: Because of the small number of maternal deaths, the annual rates, particularly in the smaller countries, are subject to large random fluctuations. The high rates for Iceland and Luxembourg in 1990 and for Malta in 1991 were based on only one death.

[a]Data referring to 1988.
[b]Data referring to 1986-1989.
[c]Data referring to 1988-1989.
[d]Data referring to 1987-1989.
[e]From 1970 to 3 October 1990, weighted averages of estimates for the former Federal Republic of Germany and the former German Democratic Republic.

Figure 24. Trends in maternal mortality, Romania, 1960-1991



related aspects of maternal health, including coverage of maternity care, unsafe abortion incidence and mortality, anaemia in women, infertility, low birth weight and perinatal mortality (World Health Organization, 1991b).

The data collected and analysed in the databases are by no means uniform in terms of quality or presentation. It is therefore difficult to make direct comparisons across time or between countries. Moreover, because the sources usually relate to subnational levels, extrapolating to the national level is rarely possible.

The first global and regional estimates of maternal mortality were developed by WHO for the International Safe Motherhood Conference held in 1987 and related to the period around 1983 (World Health Organization, 1986a). The resulting annual global figure of 500,000 maternal deaths was considered to be an approximation that erred on the side of underestimation rather than overestimation.

In 1991, applying the same modelling strategy, WHO updated the figures for the period around 1987, using information from recent studies undertaken as interest in maternal mortality increased. By 1991 more RAMOS studies had been completed in developing countries, the first results of sisterhood estimations were available and more evidence had come to light on the extent of misclassification of maternal deaths even in countries with good vital registration systems. This second round of estimation produced global figures very similar to those of the first round, but noted substantial changes in regional estimates, largely because of improved data availability rather than any real improvement in maternal mortality ratios.

TABLE 42. MATERNAL MORTALITY RATIO, SELECTED DEVELOPING COUNTRIES, 1970-1993
(Per 100,000 live births)

Region and country	*Maternal mortality ratio*							
	1970-1974	*1975-1979*	*1980-1984*	*1985-1989*	*1990*	*1991*	*1992*	*1993*
Africa								
Mauritius	147.8	116.6	87.1	77.4	68.8	70.0	40.6	27.7
Asia								
Armenia	..	..	..	32.0[a]	40.1	23.1	12.8	..
Azerbaijan	..	..	..	22.0[b]	9.0	..	..	34.0
Georgia	..	..	..	23.0[b]	21.0	..	50.0	..
Hong Kong, China	16.4	10.1	6.0	4.4	4.4	5.9	5.5	4.2
Israel	..	12.6	3.1	4.2	12.6	8.5	5.4	..
Kazakhstan	..	..	..	50.8[a]	54.8	48.0	56.9	49.6
Kyrgyzstan	..	..	50.3[b]	49.7	62.9	..	70.0	..
Singapore	25.6	17.4	9.6	6.7	2.0	4.1	4.0	..
Tajikistan	..	..	..	44.0[b]	..	53.2	..	..
Turkmenistan	..	..	..	33.0[b]	42.0	..	..	55.0
Uzbekistan	..	..	..	39.0[b]	34.0	33.3	30.1	42.0
Latin America and the Caribbean								
Argentina	..	84.6	64.2	52.0	50.4	48.1	..	..
Barbados	118.8	67.4	22.3	10.0	..	..	..	..
Chile	145.1	103.1	53.5	45.2	..	..	..	..
Costa Rica	81.6	51.5	27.4	27.9	14.6	34.5	..	..
Cuba	60.7	53.0	51.6	44.4	41.8	..	..	..
Mexico	128.4	121.0	98.0	60.2	54.8	51.3	50.0	..
Panama	110.1	82.9	66.0	56.0	..	..	..	..
Puerto Rico	26.0	13.7	10.2	17.1	19.5	20.2	21.7	..
Trinidad and Tobago	140.6	94.7	50.2	64.7	54.3	49.2	..	..
Uruguay	65.5	59.4	44.8	31.3	15.9	..	..	..
Venezuela	88.5	67.7	56.8	58.3	..	..	..	..

Sources: World Health Organization, *World Health Statistics Annual, 1987* (Geneva, 1987), table 9; *World Health Statistics Annual, 1988* (Geneva, 1988), table 10; *World Health Statistics Annual, 1989* (Geneva, 1990), table 11; *World Health Statistics Annual, 1990* (Geneva, 1991), table 9; and *World Health Statistics Annual, 1991* (Geneva, 1992), table 10; *World Health Statistics Annual, 1992* (Geneva, 1993), table D-1; *World Health Statistics Annual*, 1993 (Geneva, 1994), tables D-1 and D-6; *World Health Statistics Annual, 1994* (Geneva, 1995), table B-1; and World Health Organization Maternal Health and Safe Motherhood Programme Database.

[a]Data referring to 1988-1989.
[b]Data referring to 1988.
[c]Data referring to 1981-1982.

Although the regional and global estimates derived from this simple model were generally well accepted and used by the international health community, they suffered from a major weakness. Because the model was greatly simplified and not very robust, WHO was unable to issue the individual country estimates from which the regional and global totals were derived. Thus, the model could not be used to provide an approximation of the level of maternal mortality in an individual country.

Demand for more precise estimates of maternal mortality has continued to increase throughout the 1990s, especially following the World Summit for Children in 1990 and the International Conference on Population and Development in 1994. In response, WHO and the United Nations Children's Fund (UNICEF) in collaboration with the Johns Hopkins University have developed a new approach to estimating levels of maternal mortality in developing countries. The new approach has the dual objective of generating improved estimates for countries with inadequate or no national data on maternal mortality, and at the same time providing better estimates of maternal mortality in 1990 as a baseline against which to measure progress.

The new estimates were developed using a dual strategy: existing national maternal mortality estimates were adjusted to account for under-reporting and misclassification; and a simple model was developed to predict values for countries with no data. The model uses two independent variables - general fertility rates and proportion of births that are assisted by a trained person - to predict maternal policy.

This approach has been used to recalculate regional and global levels of maternal mortality for 1990 and to

produce individual country estimates. The results shown in table 43, indicate that maternal mortality is higher than previously estimated, with some 585,000 maternal deaths compared with 509,000 from the earlier model. The most significant differences between the old and the new models are for Africa, where the maternal mortality ratio according to the new estimates is 870 per 100,000 live births, compared with the earlier estimate of 630 per 100,000. By contrast, the estimates produced by the new model for Asia and Latin America and the Caribbean show relatively small changes from those of the earlier model.

E. CAUSES OF MATERNAL DEATHS AND RELATED MORBIDITIES

Studies from around the world indicate that most maternal deaths are due to the same five obstetric complications: haemorrhage; sepsis; eclampsia; obstructed labour; and abortion. But these medical causes represent only the most visible dimension of a multi-layered problem. In reality, it is often logistic or health service factors that determine whether a woman with pregnancy-related complications lives or dies. Lack of access to skilled health care, for pregnancy complications or emergencies, is often the root cause of death. Barriers to such access can be physical (distance, lack of transport), economic (lack of resources to pay for the needed transport, care or drugs) or sociocultural (low status which impedes women's ability to take decisions to seek care and which may impose restrictions on their mobility).

TABLE 43. ESTIMATES OF MATERNAL DEATHS AND MATERNAL MORTALITY RATIOS, 1990

Major area or region	*Maternal deaths*	
	Number (thousands)	*Ratio (per 100,000 live births)*
World	585	430
More developed regions[a]	4	27
Less developed regions[b]	582	480
Africa	235	870
Eastern Africa	97	1 060
Middle Africa	31	950
Northern Africa	16	340
Southern Africa	4	260
Western Africa	87	1 020
Asia	323	380
Eastern Asia	24	91
South-central Asia	227	560
South-eastern Asia	56	440
Western Asia	16	320
Europe	3.2	36
Eastern Europe	2.5	61
Northern Europe	0.1	11
Southern Europe	0.2	14
Western Europe	0.3	17
Latin America and the Caribbean	23	190
Caribbean	3	400
Central America	5	140
South America	15	200
Northern America	0.5	11
Oceania	1.4	280
Australia-New Zealand	0.0	10
Melanesia/Micronesia/Polynesia	1.4	810

Source: World Health Organization, "New estimates of maternal mortality", *Weekly Epidemiological Record* (Geneva), vol.71, No.13, (1996), pp. 97-100.

[a]Comprising all regions in Europe and Northern America, and Australia, New Zealand and Japan.

[b]Comprising all regions of Africa, Asia (excluding Japan), and Latin America and the Caribbean and the regions of Melanesia, Micronesia and Polynesia.

Estimating the causes of maternal deaths is even more difficult than counting the total numbers. Few studies collect information on cause of death in a standard format or follow the categories of causes of death described in the International Statistical Classification of Diseases. However, based on the evidence of the few good community-based studies, it is possible to estimate the breakdown of maternal mortality by the five major causes of death.

Statistical data on incidence and case fatality of obstetric complications are not systematically collected in the WHO maternal health database, in large part because of the paucity of such information in a readily comparable format. However, in a collaborative effort between WHO and the World Bank to estimate the global burden of disease, WHO brought together all available information to assess both incidence of the main obstetric complications and related mortality (Murray and Lopez, forthcoming). The figures derived from that exercise are based on a combination of available epidemiological evidence and clinical judgement. A summary of incidence of and mortality from the five major obstetric complications is given in table 44. There are significant regional variations within these global totals. Abortion is likely to account for a larger percentage of overall maternal mortality in Latin America and the Caribbean, although the maternal mortality ratio is generally lower there than in most parts of Africa.

It should be noted that the incidence of complications refers to cases, not women. Many women experience more than one complication during pregnancy. This is particularly true for abortion where the woman may

TABLE 44. ESTIMATED GLOBAL INCIDENCE AND MORTALITY FROM MAIN OBSTETRIC COMPLICATIONS WORLDWIDE, 1990

Obstetric complications	*Cases[a] (thousands)*	*Number of deaths (thousands)*	*Percentage of all maternal deaths*
Haemorrhage	13 700	146	25
Sepsis	11 500	87	15
Hypertensive disorders of pregnancy and eclampsia	6 800	74	13
Obstructed labour	7 000	44	7
Unsafe abortion	19 400	76	13
Other direct causes	3 400	44	8
Indirect causes	13 000	115	19
TOTAL	75 000	585	100

Source: World Health Organization, Maternal Health and Safe Motherhood Programme (Geneva),unpublished provisional estimates.

[a]Estimated number of events, not women.

have haemorrhage and/or sepsis. In these calculations, every effort has been made to avoid double counting. Thus, it is assumed that the incidence of haemorrhage reflects only obstetric haemorrhage and excludes haemorrhage related to abortion; the incidence of sepsis does not include abortion-related sepsis. Similar considerations apply for indirect complications.

In these calculations it has been assumed that each complication is a discrete event and that complications arise in some 55 per cent of pregnancies ending in live birth. The severity of the complication will of course vary and WHO estimates that almost 15 per cent of all women develop complications serious enough to require rapid and skilled intervention if the woman is to survive without lifelong disabilities (World Health Organization, 1994a). This is very much a minimal estimate.

1. *Direct causes of maternal deaths*

Haemorrhage

Pregnancy-related haemorrhage can occur during pregnancy (ante-partum) or after the delivery of the infant (post-partum). Although in developed countries ante-partum haemorrhage is no longer a leading cause of maternal death, it continues to be a major cause of both maternal and perinatal morbidity. By contrast, post-partum haemorrhage is a significant feature in maternal deaths in both developing and industrialized countries.

Both ante-partum and post-partum haemorrhage are unpredictable. Although ante-partum haemorrhage due to placental abruption has been associated with chronic or pregnancy-induced maternal hypertension, this has been disputed in the literature (Fraser and Watson, 1989). Haemorrhage—particularly post-partum haemorrhage—is fatal unless treatment is instituted rapidly. In many parts of the world where institutional deliveries are the norm, the incidence of post-partum haemorrhage has been reduced as a result of active management of the third stage of labour, including use of oxytocic drugs. However, post-partum haemorrhage remains a serious problem where such drugs are not available. This is exacerbated by the fact that in many parts of the world women are seriously anaemic throughout pregnancy and cannot tolerate blood loss. Where blood for transfusion is not readily available, their condition may rapidly deteriorate. Furthermore, in the absence of screening of blood, there are serious risks to the woman of transmission of hepatitis and the human immunodeficiency virus (HIV) infection.

Post-partum haemorrhage is usually defined as bleeding from the genital tract of 500 millilitres (ml) or more following delivery of the baby. While there are many causes of post-partum haemorrhage, the most frequent are retained placenta, which is associated with between one third and one half of all maternal deaths from post-partum haemorrhage, and uterine atony. Retained placenta occurs relatively frequently and has a high-case fatality rate. Uterine atony is less frequent but also has a high-case fatality rate. Coagulation defects and uterine inversion have high-case fatality rates but are relatively rare occurrences. Genital tract injuries, such as through episiotomy and "gishiri cuts" carried out by traditional practitioners in some parts of Africa, are more common and may exacerbate bleeding from other causes but alone are rarely causes of severe post-partum haemorrhage. Secondary post-partum haemorrhage may also be caused by chorioamnionitis. By definition, blood loss at Caesarean section should also be included among cases of post-partum haemorrhage since the amount of blood lost is frequently more than 500 ml. However, most studies of maternal morbidity and mortality conventionally separate the risks and complications of Caesarean section from those of vaginal deliveries.

Little information is available from developing countries on the incidence of post-partum haemorrhage. The few studies available indicate substantial variations

in incidence, generally due to differences in definitions and in measurement of blood loss. Even within an institutional setting, underestimation of blood loss is very common. In parts of the world where a large proportion of deliveries take place in the home with the assistance of family members or traditional birth attendants, such underestimation is likely to be even greater. Indeed, many cultural beliefs welcome major post-partum blood loss as a form of cleansing and purification. In such circumstances, there will be long delays before women and their attendants seek skilled assistance. However, because post-partum haemorrhage is swift to kill, any delay is likely to be fatal. It has been estimated that the time between onset of haemorrhage and death can be as little as two hours (Maine, 1991).

Several studies have been undertaken in developed-country settings to ascertain the incidence of post-partum haemorrhage. Two studies that used a variety of techniques to accurately calculate blood loss—one in the United Kingdom of Great Britain and Northern Ireland and one in Australia—provide good indications of the true incidence of post-partum haemorrhage (Prendiville and others, 1988; McDonald and others, 1993). The latter study showed that 17 per cent of women had experienced a blood loss of 500 ml or more and that 4 per cent had lost one litre or more. A recently completed study in the Philippines showed that 8 per cent of women had self-reported an incident of severe post-partum bleeding (Philippines, 1994). The questions used to elicit responses on haemorrhage were very specific, referring to episodes of fainting and to uncontrolled bleeding. Taking a weighted average of several studies, WHO estimates the incidence of haemorrhage at over 10 per cent of all births worldwide.

Although little is known about the incidence of post-partum haemorrhage, data on the proportion of maternal deaths due to haemorrhage are available from a number of community studies. It is inappropriate to use hospital-based data for this purpose because, as already observed, haemorrhage is swift to kill and in countries where access to institutional facilities is poor, few haemorrhage deaths will take place in the hospital. However, the community studies do indicate a relatively uniform pattern around the world, with haemorrhage accounting for the majority of maternal deaths in countries as varied as Angola (Angola, 1990; Rita, 1988); Botswana (Botswana, 1990; United Nations Children's Fund, 1989; and Gongoro, 1988); China (Wenzhen, 1991; and Zhang, 1991); Egypt (Egypt, 1994); Honduras (Castellanos and others, 1991); Indonesia (Fortney and others, 1985; Agoestina and Soejoenoes, 1989); Paraguay (Pan American Health Organization, 1990); and Sri Lanka (World Health Organization, 1986b).

On the basis of community studies, it has been calculated that at least 25 per cent of maternal deaths are due to haemorrhage-the majority to post-partum haemorrhage.

The major disability resulting from non-fatal haemorrhage is Sheehan's syndrome, post-partum pituitary necrosis following obstetric shock. The clinical symptoms include chronic weakness, premature old age, amenorrhoea, loss of pubic hair and mental changes, including apathy and confusion. The symptoms may never be severe and may be delayed for several years after the pregnancy. Because of the apathy induced by the disease, few women consult a doctor with such symptoms and the only way to estimate its extent would be to conduct detailed community-based studies.

A more common complication of haemorrhage is anaemia. A woman with a normal haemoglobin level at the end of pregnancy who suffers even a normal blood loss of less than 500 ml, will need to make good the loss subsequently if she is to avoid becoming anaemic. This is in addition to the extra demands for iron imposed by lactation. Where pregnant women are already anaemic, post-partum haemorrhage is likely to aggravate the anaemia and may even be fatal. Unfortunately, little is known about the complex and interrelated epidemiology and aetiology of haemorrhage and anaemia and there is a need for further studies elucidating the relationships.

Sepsis

Historically, puerperal sepsis, or childbed fever, was a common occurrence, greatly feared by women and medical practitioners alike. Before the mechanism of contagion was fully understood and accepted by the medical community, puerperal sepsis often led to inevitable obstetric shock and death. The disease took on epidemic proportions and was most evident in the lying-in hospitals of Europe. Transmission from patient to patient was predominantly carried by attending physicians and nurses who tragically remained ignorant of their role as "vectors". Owing to the vigilant observations of some investigators in recognizing how the disease spread and following their insistence in respect of adopting clean delivery practices, the epidemic of

puerperal sepsis came under control. With the introduction of antibiotics, puerperal sepsis declined significantly in industrialized countries. However, nosocomial infections remain a problem, particularly for operative deliveries, and increasing antibiotic resistance is noted regularly. The advent of the acquired immunodeficiency syndrome (AIDS) pandemic has been associated with an increased number of cases of antibiotic-resistant sepsis.

In developing countries, puerperal sepsis is still prevalent and continues to present a significant risk of obstetric morbidity and mortality to women in Africa, Asia and Latin America and the Caribbean. The study of puerperal sepsis is hampered by the lack of up-to-date population-based data for out-of-hospital births. The proportionate role that these infections play in maternal death varies greatly, but puerperal sepsis figures prominently in nearly every report on maternal mortality. In the acute stages of sepsis, the woman suffers from pain and illness. Her condition may eventually result in infertility, chronic debilitation or death.

The incidence of puerperal infections in developing countries is not known accurately. The numbers may be vast. For the most part, data on morbidity come from industrialized countries. Infection is one of the most common complications after delivery according to hospital-based studies. In the United States, about 1-7 per cent of post-partum women develop a puerperal infection (Eschenbach and Wager, 1980; and Gibbs and Weinstein, 1976). A prospective surveillance study by Sweet and Ledger (1973) of over 6,000 post-partum women indicated an infection rate of nearly 6 per cent. A recent study from Zaria, Nigeria (Harrison and Rossiter, 1985), reported a rate of post-partum genital sepsis of 7.9 per cent. However, the rate rose to 14.9 per cent among women who delivered at home. Some studies have reported even higher rates of morbidity due to genital sepsis. In a maternity hospital in Nairobi, Kenya, 20 per cent of women developed a post-partum upper genital tract infection (Plummer and others, 1987). On the other hand, in a Philippine study on obstetric morbidity (Philippines, 1994) self-reported symptoms of sepsis were remarkably low, at 2 per cent. This study did not include any physical examination, however.

Based on the limited information available, the rates of incidence of puerperal sepsis have been calculated; they range from a high of 10 per cent of all births in sub-Saharan Africa to a low of 5 per cent in the developed regions. However, such data represent educated guesses rather than informed opinion. In most parts of sub-Saharan Africa and Asia, post-partum follow-up of women after delivery is virtually non-existent. Even hospital deliveries are routinely discharged within 24 hours and there is rarely any contact with the woman until she brings the infant for immunization and/or for a six-weeks post-partum check-up. At six weeks, post-partum signs and symptoms of sepsis are no longer likely to be clinically manifest, with many infections rising to the upper genital tract. Some women will have died following severe sepsis. Women whose infants have died may not come for post-partum check-ups and may not be found through immunization programmes.

It is not possible to compare the incidence of sepsis in institutional and home deliveries. Incidence is likely to be high in the former as a result of nosocomial factors. On the other hand, certain traditional practices, such as insertion of substances into the vagina, are likely to foster the development of sepsis in home deliveries.

Investigators have noted several risk factors that increase a woman's risk of developing puerperal sepsis. In developing countries, predisposing factors include pre-existing sexually transmitted infections and other vaginal infections; prolonged rupture of membranes; retained products of conception; diabetes; Caesarean delivery (especially if done as an emergency) and other operative deliveries; post-partum haemorrhage; a history of previous complications of labour; anaemia and malnutrition; poor infection-control practices; and engaging in sexual intercourse close to term.

Community factors that increase a woman's risk of developing puerperal sepsis, and of dying from it, include delivery by an untrained traditional birth attendant; traditional practices such as the insertion of foreign objects and substances into the vagina; lack of transportation and resources; a great distance from the women's home to a health facility; inadequacy of health facilities which are often ill-equipped and ill-staffed; cultural factors that delay care-seeking behaviour; and women's poor health in general.

The role that infection plays in maternal death varies greatly. Even so, obstetric sepsis, particularly puerperal sepsis, figures prominently in nearly every report. The risk of obstetric sepsis is lowest in industrialized countries. Nevertheless, a substantial risk still exists. In the United States, for example, infection accounts for under 8 per cent of maternal deaths (Atrash and others, 1990).

Eighteen per cent of the infections were in the genital tract, 15 per cent were attributed to chorioamnionitis and 32 per cent were due to septicaemia. The proportion of maternal deaths associated with obstetric sepsis represents a decline from just a few decades ago. The two major reasons for the decline are the legalization of abortion and the use of broader spectrum antibiotics (Sachs and others, 1988).

Deaths due to sepsis are almost entirely avoidable through a combination of preventive and treatment interventions. The incidence of sepsis can be substantially reduced through the avoidance of certain traditional practices (such as insertion of foreign bodies into the vagina during labour or the post-partum period) and through the ensuring of a clean delivery for all births, whether they take place at home or in an institutional setting. Other interventions that can help reduce the incidence and case fatality from sepsis include detection and management of sexually transmitted diseases and other reproductive tract infections during pregnancy, prophylactic administration of antibiotics in cases of prolonged rupture of the membranes and timely intervention for prolonged labour.

Because of the overlap in disabilities resulting from puerperal and post-abortion sepsis, they are taken together here. Puerperal and post-abortal sepsis that cause inflammation of the vagina can, if left untreated, result in vaginal stenosis–a condition in which the vagina becomes short, narrow and rigid. This is most likely to occur if there has been damage to the vagina from, for example, lacerations or traditional practices. Vaginal stenosis affects menstrual flow, sexual intercourse and future childbearing. Intercourse becomes painful or impossible in some cases: menstrual blood, unable to flow freely, gets trapped above the vagina, causing severe abdominal pain, and in some cases it becomes impossible to pass urine.

The condition can be fatal, but there are other consequences of untreated or inadequately managed puerperal sepsis including long-term reproductive tract infections, chronic pelvic inflammatory disease (PID) and chronic pelvic pain, bilateral tubal occlusion and infertility. Such consequences stem from the fact that, puerperal or post-abortal sepsis if left untreated, can spread upwards through the genital tract causing damage to the fallopian tubes and ovaries. The condition concerned, PID, first acute and then chronic, causes a range of problems. Scars and adhesions that form around the uterus as a result of infection may cause it to change position, adding to the range of symptoms experienced. Pain is the dominant symptom, and in severe cases of PID it occurs during defecation, when passing urine, during sexual intercourse, and at and around the time of menstruation. Low backache is common and the menstrual periods become irregular and very heavy. Widespread damage to the reproductive system caused by chronic PID often leads to irreversible infertility and the daily pain and discomfort affect the lives of sufferers.

Women whose fallopian tubes are damaged by an earlier infection are more at risk for a second tubal infection and are more likely to become infertile when a further episode of PID is experienced. In a Swedish follow-up study of women that had had PID, infertility due to occlusion following scarring obstruction was found in 11 per cent after one infection, 23 per cent after two episodes and 54 per cent after three episodes. In women who had had only one episode of salpingitis (inflammation due to infection of the fallopian tubes), the infertility rate increased with the severity of the inflammation (Weström, 1980). However, in the pre-antibiotic era, 60-75 per cent infertility after acute PID was observed, a state of affairs comparable with the current reality in many developing countries where treatment is frequently unavailable or delayed (Weström and Mard, 1990).

Many years after an episode of puerperal sepsis, women with PID may develop other related gynaecological disorders, such as uterine fibroids, uterovaginal prolapse and ovarian diseases, which require surgery. Because of adhesions within the abdomen, it may be difficult to perform surgery without causing damage to the intestines and bladder.

Although PID associated with puerperal or post-abortal infection is a known cause of tubal damage leading to infertility, sexually transmitted diseases can have the same effect, and reports of tubal infertility often do not distinguish between the two causes. However, high rates of secondary infertility (failure to become pregnant again after a previous delivery) may indicate that complications of pregnancy and delivery have played a role. A recent study of 758 women in a rural community in Nigeria found that the prevalence of infertility was 30 per cent but only 23 per cent of the total was attributable to a history of sexually transmitted

disease, the remainder presumably being due to post-partum or post-abortion infections and PID (Adetoro and Ebomoyi, 1991).

Few community-based studies in developing countries have examined the prevalence of reproductive tract infections and associated infertility. A rare study in rural Egypt found that 51 per cent of the women had reproductive tract infections, and PID was suspected in 20 per cent of the cases (Younis and others, 1993). A similar study in Lahore, Pakistan, found a 3 per cent incidence of PID and a 5 per cent incidence of infertility (Awan and others, 1994). In rural India, the prevalence of reproductive tract infections was found to be 46 per cent and of PID, 24 per cent (Bang and others, 1989). A study in rural Nigeria found a prevalence of reproductive tract infections in women aged 20 years or over of 23 per cent and a prevalence of PID of 9 per cent. Among adolescents in this study, the prevalences were 40 per cent and 4 per cent, respectively (Brabin and others, 1995).

Further work is necessary to elucidate the complex interactions among the incidence, mortality and disabilities associated with puerperal sepsis. It has been estimated that 41 per cent of all cases of sepsis will result in long-term reproductive tract infections and about 9 per cent in infertility. In effect, it is estimated that, on the average, every second woman will experience long-term consequences following puerperal infection.

Hypertensive disorders of pregnancy (HDP) and eclampsia

The hypertensive disorders of pregnancy (HDP) represent a syndrome of unknown aetiology characterized by the development of hypertension, proteinuria and facial and hand oedema after the twentieth week of gestation. This syndrome, which is unique to pregnancy, is unpredictable in its clinical progression and may remain in its milder form or rapidly lead to severe pre-eclampsia, eclampsia (convulsions) and death. The pathogenesis is well understood even though the aetiology remains obscure. Some authors maintain that pre-eclampsia (an important component in the syndrome) is a "birth defect" acquired at the time of implantation, making prevention very difficult (Zuspan, 1991).

Because uniform diagnostic criteria have not readily been accepted by all who study and report on HDP, the prevalence of the disease may not be readily comparable between study sites (Davies, 1971). Even if one classification was to be agreed to by all, attempts would have to be made to standardize blood pressure measurements among researchers in order to interpret study results meaningfully. More often than not, authors do not provide a detailed description of how blood pressures are taken and reported—one covering, for example, position of patient, Korotkoff sounds, cuff size in relation to arm circumference, state of patient, gestational age, multiple recordings and so on. Therefore, the lack of an agreement on definition and method of making clinical assessments has led to a situation not only in which the aetiology of HDP is often sidestepped through use of the phrase "isease of theories"but where its epidemiology is poorly described as well.

There are very few population-based studies on the frequency with which hypertensive disorders occur in pregnancy. There is also little information on the magnitude of the risk of pre-eclampsia's developing in a woman with pregnancy-induced hypertension. However, it is known that eclampsia is more common in certain conditions, including during first and molar pregnancies, where there is a large amount of placental tissue as in twin pregnancy or diabetes, in obese women and in cases where there is a familial tendency.

Most reports on the epidemiology of the condition have dealt with the occurrence of eclampsia (convulsions). Convulsions or "fits" occurring in pregnancy are recognized fairly easily even without fully trained medical personnel, and the condition is likely to be recorded. Therefore, for the purposes of these calculations, attention has focused largely on the incidence, case fatality and long-term morbidities arising from eclampsia.

There is no doubt that the incidence of eclampsia can be very much influenced by the availability and quality of antenatal care. Moreover, in parts of the world where care is unavailable or substandard and the incidence of eclampsia is likely to be high, there is usually inadequate recording of births (and maternal deaths) so that it is not possible to determine the number of pregnant women at risk or the incidence and mortality by parity. To add to the difficulty of estimating incidence, most studies have concentrated on data from hospital sources which, like other factors connected with maternal mortality and morbidity, are inadequate and biased in respect of incidence and mortality.

Rates of eclampsia of about 0.1 per cent have been reported for different countries around the world (Australia, Canada, France, Germany, Israel, the Netherlands, New Zealand, Switzerland and the United Kingdom) from 1950 onwards (MacGillivray, 1983). Over the same period, much higher rates (10-17 per cent) have been recorded in India, Italy, Nigeria and the Republic of Korea. Historically, even higher rates have been recorded. However, these are all largely hospital incidence rates which reflect the referral rate of emergencies and standards of antenatal care rather than the true incidence of the condition. There is evidence from countries that have maintained good records for several decades that the incidence of eclampsia is falling, although the reasons for any such decline remain obscure.

A proportion of deaths from hypertensive disorders are associated not with eclampsia but with other complications of hypertension such as disseminated intravascular coagulation. Estimates of the proportion of maternal deaths associated with HDP and eclampsia indicate wide intercountry variations. It has been assumed that two thirds of all HDP deaths are associated with eclampsia. This is a somewhat arbitrary figure, but it appears to be in line with evidence from different countries.

Eclampsia, although a rare event, has a high-case fatality rate. By contrast, hypertensive disorders are more common but less likely to result in death or permanent disability. The case-fatality rate varies from region to region as a function of the amount and quality of prenatal care assumed to exist. It is widely believed that the system of regular and frequent monitoring of blood pressure instituted under modern antenatal care regimens has helped to prevent at least a part of the overall total of cases of hypertension from developing into severe pre-eclampsia and eclampsia. Where such an effective system of antenatal care does not exist, the incidence of eclampsia is likely to be higher and the case fatality greater because women with the condition will reach the hospital in a serious condition that renders successful treatment difficult.

Obstructed labour

Prolonged and obstructed labour is more common in humans than in other primates because the birth canal of a woman is not straight and wide as in other primates, but varies in width. The baby's head, which is large compared with the rest of the body, has to turn as it negotiates the birth canal (Rosenberg, 1992). Evolution has resulted in a variety of compensatory mechanisms for dealing with the resulting difficulties in childbirth. For example in the mother, increased levels of the hormone relaxin cause a relaxation of the ligaments at the sacroiliac articulations and the pubic symphysis. This increased joint mobility adds by a considerable amount to the dimensions of the pelvic inlet. Also, during labour the foetal head is subjected, when it is pressed against the maternal pelvic bones, to the compressive forces arising during maternal uterine contractions. Because the sutures of the foetal cranial bones are not fused, deformation can occur between the individual bones. Moulding may account for a reduction in foetal cranial diameter of 5-10 millimetres (mm). Although foetal cranial moulding is an important adaptive response to a tight fit in the birth canal, excessive moulding is disadvantageous, as it may cause cerebral trauma, mental retardation or cerebral palsy.

Because of this tight fit between the human pelvis and the foetal head, prolonged labour is a relatively common complication of delivery. The adaptive mechanisms may be insufficient to prevent damage to mother, infant or both. A slight disproportion between the size of the baby's head and the space in the bony birth canal (cephalopelvic disproportion) is commonly a result of physical immaturity or stunting in the mother, or of distortion of her pelvis as a result of a disease or malnutrition. Obstructed labour is also caused by an abnormal position of the foetus when the mother goes into labour.

Prolonged labour due to cephalopelvic disproportion may result in obstructed labour, maternal dehydration ruptured uterus and obstetric fistulas (and also, but less directly, in post-partum haemorrhage and neonatal infection). In the infant, prolonged obstructed labour may cause asphyxia, brain damage and death. Obstructed labour, with or without ruptured uterus, features among the five major causes of maternal death in almost every developing country, although its relative importance varies from region to region. It can be said with certainty that abnormally prolonged labour and its effects are major contributors to maternal (and perinatal) mortality and morbidity worldwide.

As a general rule, prolonged labour is more common among primiparous women. However, disproportion in parous women presents different and much more dangerous problems than in primiparae. A past history of uneventful delivery may falsely reassure the birth attendant and the woman herself; but in a subsequent labour, the infant is likely to be bigger, the presentation

may be abnormal or the pelvis may, in some instances, be smaller. Because the tempo of labour is more rapid in a parous woman and uterine action the presence of disproportion is likely to be vigorously reactive, uterine rupture is an ever-present possibility. The risk of uterine rupture is magnified if oxytocin augmentation is used.

In parts of the world where malnutrition, disease and early marriage are common, prolonged labour is primarily due to cephalopelvic disproportion. The women most at risk are the very young, women of small stature and those who have suffered from previous pregnancy complications. Rupture of the uterus is rare in first pregnancies but it is a common consequence of obstructed labour among women who have borne many children. In countries where cephalopelvic disproportion is less prevalent, prolonged and obstructed labour is more likely to be due either to malpresentation of the foetus or to inefficient uterine contractions.

Information on the incidence of and mortality from prolonged or obstructed labour is incomplete and patchy. In part, this is because when a woman dies as a result of obstructed labour the death is often classified under the final cause of death which may be sepsis, ruptured uterus or haemorrhage rather than ascribed to the underlying cause, namely, cephalopelvic disproportion or abnormal presentation.

Any case of prolonged labour will require some form of obstetric intervention if it is to be brought to a successful outcome. Abnormal position or cephalopelvic disproportion will require instrumental or Caesarean delivery. It is therefore possible to use rate of operative delivery—Caesarean, forceps or vacuum extraction—as an indicator of the incidence of prolonged labour. This could be assumed to provide an indication of the physiological incidence of prolonged and obstructed labour.

In practice, things are not so simple. Rates of instrumental delivery vary from country to country and from one institution to another within the same country. Even among the developed countries where such data are relatively easier to obtain than in developing areas, there are marked international variations in almost every aspect of operative delivery utilization: the rates of total operative delivery, the relative proportions of instrumental vaginal and Caesarean delivery; and the rates of change in all of these over time (Lomas and Enkin, 1989).

Bearing in mind all the above-mentioned caveats, it has been assumed for the purpose of these estimations that the incidence of obstructed labour varies, within a narrow range, between a low of 3 per cent and a high of 6 per cent of all births. The low figure is assumed to apply in more developed areas and those where early marriage and childhood malnutrition, especially among girls, are not widespread. The high figure applies to Africa and parts of Asia. When weighted by numbers of live births in each region, the global incidence of obstructed labour is estimated at 5.1 per cent of all live births (live births being used as a proxy for deliveries).

Although data on the incidence of obstructed labour are rare, more information is available on maternal mortality due to prolonged or obstructed labour. However, such data must also be treated with caution because in many instances the cause of death is classified under another heading, for example, sepsis, ruptured uterus or haemorrhage, all of which would be secondary complications of obstructed labour.

Following the analysis of the percentage of maternal mortality due to obstructed labour, regional estimates were derived ranging from less than 1 to 10 per cent, with a global average of 7 per cent of direct maternal deaths. This amounts to some 44,000 maternal deaths annually.

By far the most severe and distressing long-term condition following obstructed labour is obstetric fistula, in which a hole forms in the part of the vaginal wall communicating with the bladder (vesicovaginal fistula) or in the part communicating with the rectum (rectovaginal fistula) or in both parts. In developing countries, fistulas are commonly the result of prolonged obstructed labour and follow pressure necrosis caused by impaction of the presenting part during difficult labour. It is the duration of impaction without relief rather than the magnitude of the pressure that determines the degree of tissue necrosis. The fistula site depends greatly upon the degree of cervical effacement and dilatation, and the level at which the presenting part impacts.

The incidence of obstetric fistula is very difficult to determine because it is the result of poor or absent obstetric care associated with a range of social conditions such as lack of health services, early marriage, seclusion of women and socio-economic deprivation. Most reports on the incidence of the problem are based

on hospital records and are reported by the surgeons operating on the women. Their primary concern is the degree of successful repair rather than the incidence of the problem. Such reports do provide an indication of the existence of the problem in particular areas but do not furnish adequate data as to incidence or prevalence. In general, cases are reported as a proportion of admissions or gynaecological admissions or as a proportion of hospital deliveries. Moreover, such reports indicate only those cases that reach a hospital setting for treatment. Since most fistula sufferers are treated as outcasts, divorced by their husbands and live in isolation (Murphy, 1981), they are unlikely to come to the attention of researchers unless special efforts are made to locate them.

Only patchy information is available from countries where fistulas are known to occur. In one area of Nigeria, for example, at hospitals serving a population of some 15 million from whom could be expected about 600,000 births annually, surgeons estimate a need for 1,500 fistula repairs each year to cope with new cases and backlog. Reports estimate the prevalence of fistulas in sub-Saharan Africa to range from 1.5 million to 2.0 million women, with 50,000-100,000 new cases occurring each year (Waldijk, 1994).

Where obstetric care is inaccessible, the damage resulting from obstructed labour may be as severe as that resulting from fistulas. However, prolonged obstructed labour can cause chronic, though less severe, disabilities even in areas where obstetric interventions are available. Perineal trauma is a common result of prolonged and obstructed labour and can cause discomfort to such a degree as to dominate the experience of early motherhood and result in significant disability during the months and years that follow. Although there is debate about the extent to which stress incontinence is caused or aggravated by vaginal delivery, it is generally agreed that such sequelae are particularly likely to occur in cases where delivery has been prolonged or difficult. Prolonged labour is more likely to result in injury to the pelvic floor muscles or to their nerve supply or to the interconnecting fascia. This in turn may cause genital prolapse or stress incontinence.

The evidence indicates that even in developed countries with high standards of obstetric care, about 6 per cent of first-time mothers and 10 per cent of multiparous mothers had stress incontinence at the six weeks of postnatal check-up. Other studies have found that both urinary and faecal incontinence result from damage to the nerves of the pelvic floor muscles.

Abortion

Abortion is the termination of pregnancy (expulsion or extraction of the embryo/foetus) before 22 weeks of gestation or when the weight of the foetus is below 500 grams (g). Abortion can be spontaneous or induced. It is thought that some 15 per cent of pregnancies end in spontaneous abortion, usually before 12 weeks of pregnancy have elapsed. Spontaneous abortions rarely develop complications and rarely result in maternal mortality and morbidity.

Induced abortion, or the deliberate termination of pregnancy, is utilized to end an already established pregnancy (that is, after nidation has been completed). Abortion can be a relatively safe surgical procedure. In the United States, for example, the death rate for abortion is currently 0.6 per 100,000 procedures (Gold, 1990).

Unsafe abortion is defined as a procedure for terminating an unwanted pregnancy either by persons lacking the necessary skills and/or in an environment lacking the minimal medical standards. For the purpose of the WHO database and tabulations (World Health Organization, 1994b), unsafe abortion has been defined as an "abortion not provided through approved facilities and/or persons". What constitutes "approved facilities and/or persons" will vary according to the legal and medical standards of each country. The definition does not take into consideration differences in quality, services available or the other substantial differences between health systems. Unsafe abortions are characterized by the lack or inadequacy of skills of the provider, hazardous techniques and unsanitary facilities (World Health Organization, 1992c).

In developing countries where maternal mortality is high, the risk of death following complications of unsafe abortion procedures may be between 100 and 500 times higher than that from an abortion performed professionally under safe conditions.

Unsafe abortion is one of the great neglected problems of health care in developing countries and a serious concern to women during their reproductive lives. Most women seeking abortion are married or live in stable unions and already have several children (Gallen, 1982;

Onanga and others, 1986; and Thapa and others, 1994). They use abortion to limit family size or space births. They may resort to abortion in the event of contraceptive failure or the lack of access to modern contraception. However, in all parts of the world, particularly in urban areas, an increasing proportion of those having abortions are unmarried adolescents; in some urban centres, they represent the majority of all abortion seekers.

Unsafe abortions may be induced in unhygienic conditions by the woman herself, by non-medical persons or by health workers. Such abortions may be induced by insertion of a solid object (usually root, twig or catheter) into the uterus, by an improperly performed dilatation and curettage procedure, by ingestion of harmful substances, or by exertion of external force. The mortality and morbidity risks of induced abortion depend upon the facilities and skill of the abortion provider, the method used and certain characteristics of the woman herself, such as her general health, presence of reproductive tract infections (RTI) or a sexually transmitted disease, age, parity and stage of her pregnancy. The risks involved also depend upon the availability and the utilization of treatment facilities once complications have occurred.

Data on unsafe abortion are scarce and inevitably unreliable because of legal and ethical/moral constraints that hinder data collection. Under-reporting and misreporting are common because women may be reluctant to admit to an induced abortion especially when it is illegal. Few studies have achieved higher than 75 per cent accuracy of reporting and in some cases only one fourth of abortions known to have been performed have been admitted to by respondents (Wilcox and Horney, 1984; Jones and Forrest, 1992; Van der Tak, 1974; and May, Buescher and Murray, 1991). In a rare follow-up study of 118 women admitting only to spontaneous abortion in Merida, Mexico, in 1979, 77 per cent later admitted that the abortion had been induced (Canto de Cetina and others, 1985).

Hospital admissions for abortion complications are often used as an indicator of the problem of unsafe abortion. Hospital records show the number of women admitted for abortion complications and the number of subsequent deaths in a given period. This is particularly useful when information on hospital admissions, births and maternal deaths is also available for the same period of time. Assuming that spontaneous abortions are relatively constant in a given population, and that they are unlikely to cause sepsis and death, the excess may be considered to be the result of unsafe abortion.

Because of the difficulties surrounding the measurement of unsafe abortion, estimates of its incidence and mortality cannot be exact. The approach used by WHO varies according to the information available for a particular area. Estimates were made for each country with a population of 1 million or more, from which subregional, regional and world totals were derived. A detailed description of the methodology is described elsewhere (World Health Organization, 1994c).

The global estimate of the incidence of unsafe abortion shows that some 20 million unsafe abortions take place worldwide each year, encompassing almost 1 in 10 pregnancies, or representing a ratio of 1 unsafe abortion to 7 births. Nearly 90 per cent of unsafe abortions take place in developing countries. Despite liberalization of abortion laws in several countries during the 1980s and some improvement in service provision, many women still resort to abortions performed outside approved facilities or with unskilled providers.

According to the conditions in which the unsafe abortions are performed and the methods used, both conditions and methods being related to the legal status of abortion, a variety of severe complications may occur. Complications such as sepsis, haemorrhage, genital and abdominal trauma, perforated uterus and poisoning from abortifacient medicines can lead to death if left untreated. Death may also result from secondary complications, such as gas gangrene and acute renal failure. Typical complications from illegally induced abortion are illustrated by a study of 840 patients in Ibadan, Nigeria, in 1989: sepsis (86 per cent), haemorrhage (35 per cent), uterine perforation (16 per cent), lower genital tract injury (10 per cent), renal failure (0.4 per cent), coma (0.4 per cent), embolism (0.2 per cent) and death (7 per cent) (Adewole, 1992).

The estimates of the incidence of unsafe abortion and resulting maternal mortality necessarily have a high degree of uncertainty and may be either too low or too high. They reflect the judgement of epidemiological experts but should be viewed as "best guesses" based on information currently available.

Bearing in mind the large degree of uncertainty due to the incompleteness of the original data sources, it

appears that approximately 1 in 8 maternal deaths occur each year as a result of complications following unsafe abortions. These estimates inevitably have a large margin of error; the numbers could be as low as 50,000 or as high as 100,000.

Other direct causes of maternal deaths

Apart from the five major causes of maternal mortality in developing countries—haemorrhage, sepsis, eclampsia, obstructed labour and unsafe abortion—some 8 per cent of maternal deaths are related to other direct causes such as ectopic and molar pregnancies, anaesthetic complications, cerebrovascular accidents, embolisms and so forth. Very little is known about the incidence of these complications. In the United States, ectopic pregnancy is a major cause of maternal mortality and morbidity during the first trimester: it accounted for 12 per cent of all such deaths over the period 1979-1986 (Nederlof and others, 1990).

Although case-fatality rates have decreased by 90 per cent since 1970 in the United States, incidence has increased fourfold, from 4.5 to 16.8 ectopic pregnancies per 1,000 during the first 17 years of surveillance. These increases have also been observed in European countries, including Sweden and the United Kingdom. Data on ectopic pregnancy incidence in developing countries are limited: rates derived from hospital-based African studies have ranged from 4.8 to 23.2 ectopic pregnancies per 1,000 deliveries (Liskin, 1992). Ectopic pregnancy is known to be associated with reproductive tract infection, including through sexually transmitted diseases, and post-partum and post-abortal sepsis.

2. Indirect causes of maternal deaths

Pregnancy is not a disease but it can aggravate other diseases such as malaria, anaemia, jaundice, tuberculosis and heart disease. If the woman dies as a result of such aggravation, the death is classified as an indirect maternal death. Sometimes, more than one disease or condition is involved. For example, both anaemia and malaria worsen during pregnancy and malaria itself may cause anaemia or aggravate an existing anaemic condition.

Severe anaemia in pregnancy is a major obstetric problem in malaria-endemic areas. Where stable transmission of *Plasmodium falciparum* is the rule, women of childbearing age have generally acquired a relatively high degree of immunity to the parasite through repeated exposure. During pregnancy, through mechanisms that are not fully understood, women have an increased susceptibility to *Plasmodium falciparum* and experience a higher frequency and density of parasitaemia. Because the incidence of malaria is often seasonal, complications during pregnancy will tend to cluster during certain times of the year. Another contributor to anaemia during pregnancy is hookworm, which although it is unlikely to cause death itself, further aggravates existing anaemia which is seriously debilitating and can be fatal for pregnant women.

The early stages of anaemia in pregnancy are often symptomless. However, as haemoglobin concentration drops, oxygen supply to the vital organs declines and the expectant mother begins to feel weak, tired and dizzy. Pallor of the skin and mucous membranes, as well as of the nail beds and tongue, is not usually apparent until haemoglobin drops to 70 g/litre (l) or lower. As haemoglobin drops further, most tissues of the body become starved of oxygen and the effect is most marked on the heart muscles which may fail altogether. Death from anaemia is the result of the heart failure, shock or infection that has taken advantage of the patient's impaired resistance.

While less severe anaemia may not cause death directly, it can contribute to death from other causes. Anaemic women do not tolerate blood loss to the same extent as healthy women. During childbirth, blood loss of up to one litre will not kill a healthy woman, but in an anaemic woman a loss of as little as 150 ml can be fatal. Anaemic women are poor anaesthetic and operative risks. Following surgery, wounds may fail to heal promptly or may break down completely.

Viral hepatitis—a condition in which the liver is invaded and injured by certain viruses—is another disease to which pregnant women seem particularly susceptible. Studies in Ethiopia and the Islamic Republic of Iran, for example, have found that the incidence of viral hepatitis in pregnant women is twice that in non-pregnant women. Pregnant women are also more seriously ill and more likely to die. Case-fatality rates are up to 3.5 times higher than in non-pregnant women (Tsega, 1976; Borhanmanesh and others, 1973). Viral hepatitis is an epidemic disease. In 1983 in Addis Ababa, it was the third most important cause of maternal deaths (Kwast and Stevens, 1987).

In viral hepatitis, the extent of the damage to the liver varies. Where damage is mild, unaffected liver cells rapidly multiply to replace those that are injured. Thus, normal liver function is maintained and the patient recovers. Less commonly, the liver may be destroyed entirely, making regeneration impossible and death inevitable. Viral hepatitis in its fulminating form occurs most commonly during the third trimester of pregnancy. Premature labour, liver failure and severe haemorrhage commonly complicate this form of the disease and the infant is unlikely to survive. Fatal haemorrhage is triggered by acute liver failure. In this condition, the blood loses its ability to clot and bleeding occurs not only through the genital tract but also into other sites, such as the stomach, intestines, mucous membranes and injection sites in the skin and muscle.

In expectant mothers with sickle cell disease, the last four weeks of pregnancy, labour and the first week after delivery are particularly dangerous. Deaths result from the effects of embolism, anaemia and bacterial infections.

Sexually transmitted diseases during pregnancy are risk factors for certain complications, particularly sepsis. HIV infection or full-blown AIDS is associated with both increased incidence of sepsis and higher case-fatality rates. Anecdotal evidence from a number of countries indicates that antibiotic-resistant sepsis is common in HIV-positive women.

3. External causes of maternal death

There is evidence from a number of studies that pregnancy is associated with an increased incidence of domestic violence. In some cases, violence against women, including homicide, is related to the fact of the pregnancy's being unwanted because the woman is not married or is suspected of having an extramarital relationship. In Matlab Thana, Bangladesh, homicide and suicide motivated by the stigma of rape or pregnancy outside marriage accounted for 6 per cent of the 1,139 maternal deaths between 1976 and 1986 (Fauveau and Blanchet, 1989). The figure would rise to 21.5 per cent if deaths due to unsafe abortions—many of which are also related to shame over extramarital pregnancies—were included.

Intentional injury was also found to be a significant cause of maternal deaths among women in Chicago, Illinois, United States. Trauma accounted for 46 per cent of maternal deaths between 1986 and 1989, of which 57 per cent were due to homicide and 9 per cent to suicide (Fildes and others, 1992). A random sample of 342 women living near Mexico City revealed that 20 per cent of those battered reported blows to the stomach during pregnancy (Shrader and Caldez, 1992). The finding that pregnant women are prime targets for abuse has alerted the health-care system, which is well placed to identify and refer women who have been subjected to such abuse, to the need to develop appropriate training materials and protocols (Heise, 1994).

4. Other pregnancy-related morbidities

Pregnancy, particularly unwanted pregnancy, is also a risk factor for mental illness, particularly depression, and for suicide. Motherhood represents a major change in the life cycle and there is growing evidence that many women suffer considerable psychological distress in the 12 months after childbirth. The relative risk of a woman's being admitted to a psychiatric hospital with a psychotic illness in the first month after childbirth is about 22 times greater than in any of the 24 months preceding delivery; such an admission is 35 times more likely after the birth of the first baby than after the birth of later-born children (Kendell and others, 1987).

The increased incidence of mental illness, coupled with the short delay between childbirth and the onset of illness, and the early symptoms of perplexity and confusion suggestive of an organic disturbance, add weight to the possibility that the primary aetiology lies in the domain of physiology with psychological and social factors playing a role of secondary importance (Dennerstein and others, 1993).

Post-partum psychological disorders include post-partum blues, post-partum psychoses, post-partum depression and disorders of the mother/infant interaction. The incidence of post-partum blues has ranged from 15 to 84 per cent (Oakley and Chamberlain, 1981). Most authors conclude that the condition is a benign and transient disturbance. Post-partum psychosis, by contrast, is a more severe disturbance which may occur with a frequency of 1-2 per 1,000 births. The condition is reported from countries as diverse as Nigeria, Saudi Arabia, Senegal, the United Kingdom, the United Republic of Tanzania, and the United States (Dennerstein and others, 1993).

F. Interventions to reduce maternal mortality and morbidity

Historical evidence permits an assessment of the impact of interventions on the burden of disease due to pregnancy-related conditions. Data from the United Kingdom, for example, indicate that substantial reductions in maternal mortality were not achieved until the late 1930s, although general living standards and nutrition had been improving for several decades previously. At the turn of the century, maternal mortality ranged from 400 to 600 per 100,000 live births. Substantial and sustained reductions in maternal mortality became possible following the application of measures to prevent infection, the availability of sulphonamides, the advent of antibiotics, safe Caesarean deliveries and better management of eclampsia. Until 1935, maternal mortality ratios in England and Wales remained at some 400 per 100,000 live births.

Further back in time, ratios as high as 1,000 per 100,000 live births appear to have been common. In eighteenth century France and Sweden, the ratio was over 1,000 per 100,000 births (Gutierrez and Houdaille, 1983; and Högberg, 1985). In Sweden, maternal mortality fell significantly from over 400 per 100,000 births during the 1860s to under 200 per 100,000 live births by the early 1900s, following improvements in midwifery practice.

Similar declines in maternal mortality in Sri Lanka followed the introduction of a system of health centres around the country accompanied by the expansion of midwifery skills and the spread of family planning. During the 1950s, most births in Sri Lanka took place at home with the assistance of untrained birth attendants. By the end of the 1980s, only 30 years later, over 85 per cent of all births were attended by trained people and 76 per cent took place in an institutional setting.

An analysis of causes of maternal death in Sri Lanka over the period 1953-1968 shows that the decline was most rapid among sepsis deaths. At the beginning of the period, one fourth of all non-abortion deaths were due to sepsis. By the end of the period, the proportion had fallen to 10 per cent (Vidyasagara, 1985). Unlike the rapid decline in deaths from sepsis, deaths from haemorrhage declined more slowly, particularly in the early years. Haemorrhage as a cause of death is less easy to prevent because of the short time between the onset of serious bleeding and death.

Similar evidence for the effectiveness of health-care interventions is available from China and Cuba. Both countries established community-based maternal health care systems comprising antenatal, delivery and post-partum care and a referral system for complications. Cuba set up maternity waiting homes where pregnant women who lived far from a health facility could await delivery close to a health centre or hospital. In China, a widespread campaign to raise awareness about the need for clean delivery resulted in a massive fall in sepsis-related mortality. Haemorrhage continues, however, to present problems in rural areas with scattered populations where access to health care is difficult (Zhang and Ding, 1986).

Evidence from historical records and from developing countries at present indicates that health care is the critical factor in reducing maternal mortality. However, as regards both those records and developing countries today, other changes were or have been taking place that almost certainly helped improve maternal health and increase the chances of survival. These include better nutrition, increasing education, improved status of women and substantial reductions in fertility.

Fertility reduction is an important component of all efforts to reduce maternal mortality. Increased contraceptive prevalence helps reduce maternal deaths in two ways. First, it results in a reduction in the numbers of pregnancies with at least an equivalent reduction in maternal deaths. Second, it can help limit pregnancies that are particularly associated with high risk of mortality—those among very young women, women of high parity and women whose pregnancies are unwanted. However, fertility reduction cannot by itself reduce the risk of death once a woman is pregnant. The maternal mortality ratio, which represents a pregnancy-related risk, can remain high even though the number of maternal deaths falls because there are fewer pregnancies.

The most critical intervention for reducing the risks of childbearing is the provision of quality care for obstetric complications. This point is well illustrated by a study carried out among women belonging to a religious group in the United States that rejected all medical care—antenatal, delivery, post-partum and for treatment of emergencies—but whose members were of social and economic status similar to others living in the same area; the study found that the maternal mortality ratio—870 per 100,000 live births—was comparable to that of

BOX 5. THE MOTHER-BABY PACKAGE

The mother-baby package is based on the following principles considered to be the four pillars of safe motherhood:

(a) To ensure that individuals and couples have the necessary family planning information and services to plan and space pregnancies;

(b) To provide proper antenatal care so that complications of pregnancy are detected as early as possible and correctly treated;

(c) To give all birth attendants the necessary knowledge, skills and equipment to perform a clean and safe delivery and provide post-partnum care to the mother and baby;

(d) To make essential obstetric care available for all high-risk cases and emergencies.

The package recommends a basic set of simple interventions focused on the main causes of maternal mortality:

(a) *Before and during pregnancy.* Information and services for family planning; sexually transmitted diseases/human immunodeficiency virus (STDs/HIV) prevention and management; antenatal registration, check-ups; treatment of existing conditions (for example, malaria, hookworm); advice regarding nutrition and diet; recognition and early detection and management of complications such as eclampsia, bleeding, abortion and anaemia; tetanus toxoid immunization; iron/folate supplementation;

(b) *During pregnancy.* Clean and safe delivery; access to essential care at a health centre or hospital for bleeding, eclampsia, prolonged/obstructed labour and other complications;

(c) *After delivery (mother).* Prevention and early detection of post-partum haemorrhage, sepsis and eclampsia; post-partum care, including support for breastfeeding, family planning and STDs/HIV prevention services and tetanus toxoid immunization;

(d) *After delivery (newborn).* Resuscitation, when necessary; keeping the baby warm; early and exclusive breastfeeding; prevention, early detection and treatment of infections, including ophthalmia neonatorum and cord infections.

If properly applied, the mother-baby package could avert about 270,000 maternal deaths or nearly 50 per cent of the estimated total of about 585,000 per annum, as follows:

Cause of death	*Percentage of deaths averted*
Haemorrhage	55
Sepsis	75
Eclampsia	65
Obstructed labour	80
Unsafe abortion	75
Indirect causes	20

Source: World Health Organization, *The World Health Report, 1995: Bridging the Gaps* (Geneva, 1995).

many developing areas at present (Kaunitz and others, 1984).

Such evidence indicates the need to make maternity care accessible to all pregnant women. However, at present only 55 per cent of women in developing countries deliver with the help of a trained person. Many are assisted only by relatives or by traditional birth attendants. Only 37 per cent of women in developing countries deliver in an institutional setting. The historical record indicates that substantial reductions in maternal mortality can be achieved when skilled assistance is provided for all deliveries, whether they take place at home or in a health facility. In Sweden, maternal mortality started to fall significantly by 1890 as the percentage of midwife-assisted deliveries increased and aseptic techniques were introduced during delivery (Högberg, 1985).

However, these figures tell only part of the story. Internationally collected data do not define clearly what is meant by the term "trained attendant" and in practice the category can cover attendants ranging from specialist obstetricians to traditional birth attendants who underwent a two-week training course some years before. What matters is the availability to the pregnant or labouring woman of the skills to prevent, detect and manage the major obstetric complications together with the equipment, drugs and supplies to treat those complications effectively. In the absence of more detailed information as to the quality of the assistance, it cannot be assumed that all women who delivered with a "trained" attendant had effective access to quality obstetric care (World Health Organization, 1993).

Some 59 per cent of pregnant women in developing countries have prenatal care but, again, little is known about the quality of prenatal care received (World Health Organization, 1993). At its best, prenatal care represents an opportunity for the health-care provider to treat any diseases, to prevent certain conditions common during pregnancy such as anaemia and, most critically, to detect complications early on and refer for management to the appropriate level of care.

In practice, much prenatal care in developing countries cannot serve these vital preventive and treatment functions. All too often, the necessary drugs and equipment are absent or only intermittently available; and often, time and energy is dissipated in carrying out tests and treatments that are of limited effectiveness rather than those known to work. Because so little information is available on the quality of prenatal care or on the effective skills of so-called "trained" birth attendants, it is not possible to assert unequivocally what proportion of pregnant women in the world have access to effective pregnancy management.

G. Relationship between maternal and neonatal mortality

The complications that cause the deaths and disabilities of mothers also damage the infants they are carrying (table 45). Of the approximately 8 million infant deaths each year, almost two thirds occur during the neonatal period, before the baby is one month old. Every year there are 5 million neonatal deaths, of which 3.5 million occur within the first week of life, that are largely a consequence of inadequate or inappropriate care during pregnancy, delivery or the first critical hours after birth. Moreover, for every newborn infant that dies, there is, another infant that is stillborn.

The impact of maternal health status and care may affect the infant well beyond the paediatric period. Analysis of historical records indicates that retarded growth in foetal life is associated with an increased risk of mortality from cardiovascular and cerebrovascular diseases in adulthood. The relation between increased adult mortality risks and impaired growth in early life and *in utero* is probably due to long-term effects on physiology and metabolism imposed by an adverse environment during critical periods of development.

Aside from considerations of the numbers of deaths and disabilities, there is also the issue of the nature of a maternal death. The mothers who die are in the prime of life, at the summit of their social and economic productivity. They leave families behind them, many with young children, that must now survive without the support of the prime caregiver, producer of food and generator of income.

H. Conclusion

Among the various indicators commonly used to compare levels of development between countries and regions, maternal mortality ratios reflect striking disparities. The risk of pregnancy and childbirth, expressed as the number of maternal deaths per 100,000 live births,

TABLE 45. EFFECT OF PREGNANCY COMPLICATIONS ON MOTHER AND BABY

Problem or complication	*Most serious effects on mother's health*	*Most serious effects on newborn foetus*
Severe anaemia	Cardiac failure	Low birth weight, asphyxia, stillbirth
Haemorrhage	Shock, cardiac failure, infection	Asphyxia, stillbirth
Hypertensive disorders of pregnancy	Eclampsia, cerebrovascular accidents	Low birth weight, asphyxia, stillbirth
Puerperal sepsis	Septicaemia, shock	Neonatal sepsis
Obstructed labour	Fistulas, uterine rupture, prolapse, amnionitis, sepsis	Stillbirth, asphyxia, sepsis, birth trauma, handicap
Infection during pregnancy, sexually transmitted diseases	Premature onset of labour, ectopic pregnancy, pelvic inflammatory disease, infertility	Premature delivery, neonatal eye infection, blindness, pneumonia, stillbirth, congenital syphilis
Hepatitis	Post-partum haemorrhage, liver failure	Hepatitis
Malaria	Severe anaemia, cerebral thrombosis	Prematurity, intrauterine growth retardation
Unwanted pregnancy	Unsafe abortion, infection, pelvic inflammatory disease, haemorrhage, infertility	Increased risk of morbidity, mortality
Unclean delivery	Infection, maternal tetanus	Neonatal tetanus, sepsis

ranges from a low of 10 in Northern Europe to a high of 1,000 or more in parts of Africa—a 100-fold difference.

Maternal mortality is also a sensitive indicator of the status of women in society, their access to health care and the adequacy of the health-care system in responding to their needs. Information about the levels and trends of maternal mortality is needed, therefore, not only to assess the risks of pregnancy and childbirth but also for what it implies about women's health in general and, by extension, about their social and economic well-being.

The paucity of information about maternal ill health has meant a neglect of the problem, which the international community has only recently started to address. There is still much to be learned. The interventions needed to reduce maternal deaths have been known for many years; in contrast, little is known on how to implement those interventions in a sustainable way in resource-limited settings. Although maternal mortality and morbidity are major components of reproductive ill health, addressing these issues require interventions that differ, in several important ways, from the interventions needed to deal with other components of reproductive ill health. In particular, it is very difficult to achieve sustainable reductions in maternal mortality in the absence of functioning district health systems, including widespread availability of maternal health care at the community level along with appropriate referral and management of complications and emergencies.

The provision of such care requires neither sophisticated technologies nor expensive drugs and equipment. Ensuring that a minimal package of maternal health care is available to all pregnant women is one of the most cost-effective interventions available in health (World Bank, 1993). The development of strategies to ensure that such care is available to all those in need is a challenge that national authorities and the international community must now seek to meet.

NOTES

[1]This figure, traditionally called a rate, is actually a ratio, and measures the obstetric risk. However, for the sake of historical consistency, international organizations continue to use the term "rate" for this measure.

[2]Calculated as LTR = 1-([1-MMR][1.2xTFR]), where MMR is the maternal mortality ratio expressed as a decimal; TFR is the total fertility rate; and 1.2 is used to inflate TFR to number of pregnancies rather than live births.

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VI. SEXUALLY TRANSMITTED DISEASES, INCLUDING HUMAN IMMUNODEFICIENCY VIRUS/ACQUIRED IMMUNODEFICIENCY SYNDROME (HIV/AIDS)*

Until recently, prevention and control of sexually transmitted diseases was a low priority for most countries and development agencies. Lack of awareness of the problem of sexually transmitted diseases and their complications and sequelae, competition for resources to control other important health problems and reluctance of the public health policy makers to deal with diseases associated with sexual behaviour have all played a role in this neglect.

To date, most programmes for the prevention of sexually transmitted diseases have focused on the prevention of complications (secondary prevention). The prevention of transmission of infection (primary prevention) is at present receiving increased attention because of the global epidemic of human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) and the identification of several sexually transmitted diseases as risk factors for the spread of HIV.

Sexually transmitted infections, especially the HIV/AIDS epidemic, have always entailed suffering. In addition to the physical suffering caused by these infections, there is also considerable emotional pain. Shunning and stigmatization often afflict people with sexually transmitted diseases/HIV infection, as well as their families and friends. Modern drugs can cure most of the bacterial sexually transmitted infections and help palliate the pain and discomfort caused by viral infection, including HIV; however, even simple drugs are unavailable in many developing-country communities.

A. MAGNITUDE OF THE PROBLEM

1. HIV and AIDS

Currently in its second decade, the HIV epidemic continues to grow with thousands of new infections occurring every day. Virtually no country is free of the virus and at the end of 1994, a cumulative total of 1,025,073 AIDS cases (adults and children) worldwide had been reported to the World Health Organization (WHO, 1995a). The actual number of AIDS cases is not known because of under-diagnosis, incomplete reporting and reporting delays. However, it is estimated that over 4.5 million AIDS cases in adults and children have occurred since the beginning of the epidemic.

An estimated cumulative total of 18.5 million adults (table 46) and 1.5 million children have been infected with HIV. Of all the infected cases, from 7 million to 8 million are women, about 70 per cent of whom are of childbearing age. According to WHO, between 13 million and 15 million infected adolescents and adults are still alive at present in addition to about half a million infected children.

Regional trends

In Northern America and Western Europe, over 1.25 million adults are living with HIV and AIDS, including more than 750,000 in the United States of America alone. Since the epidemic started, AIDS has become a leading cause of death in many cities in the United States and Western Europe. The people predominantly affected thus far have been injecting drug users and homosexual and bisexual men. Heterosexual transmission is on the rise though, particularly among city dwellers with high rates of drug injecting and sexually transmitted diseases, which are known to facilitate HIV transmission.

In the United States, the proportion of AIDS cases attributable to sexual transmission between men decreased from three fourths to just over half between 1985 and 1992. However, by 1992, the proportion of cases due to drug injection had risen to one fourth. HIV infection is increasingly a disease of poverty and exclusion.

In Western Europe, there are about 450,000 HIV-infected people alive at present. There is some evidence

*Prepared by the World Health Organization (WHO), Geneva.

TABLE 46. ESTIMATED DISTRIBUTION OF CUMULATIVE HIV INFECTIONS IN ADULTS, BY MAJOR AREA OR REGION, MID-1995

Region	*Distribution*
Africa	
Northern Africa and Western Asia	150 000+
Sub-Saharan Africa	11 000 000+
Asia	
Eastern Asia and the Pacific	50 000+
Southern and South-eastern Asia	3 500 000+
Australasia	25 000+
Europe	
Eastern Europe and Central Asia	50 000+
Western Europe	600 000+
Latin America and the Caribbean	2 000 000+
Northern America	1 100 000+

Source: World Health Organization. "The current global situation of the HIV/AIDS pandemic" (Geneva, World Health Organization Global Programme on AIDS, 3 July 1995).

that HIV prevalence has stabilized in countries such as Belgium, Germany, the Netherlands, Sweden and the United Kingdom of Great Britain and Northern Ireland; Switzerland is even reporting a decline in new AIDS cases. These countries are having marked success with prevention, as evidenced also in declining rates of sexually transmitted diseases. The rate of new HIV infections among homosexual and bisexual men has dropped as a result of effective education, condom promotion and management of efforts for the prevention of sexually transmitted diseases. In places with effective needle exchange and drug treatment programmes, the rate of new HIV infections has declined among injecting drug users. However, the situation is less encouraging in countries such as Spain and Italy, where injecting drug users still account for two thirds or more of all reported AIDS cases.

In Eastern Europe and countries of the former Union of Soviet Socialist Republics (USSR), based on information available, more than 50,000 are thought to be living with HIV and AIDS. While this can still be called low prevalence, it is apt to rise because this region has many ingredients contributing to rapid spread of HIV, such as an economic crisis, rising unemployment, crumbling health systems, ethnic and religious conflicts, and displacement of the civilian population, as well as people on the move in search of economic opportunities. Recent data from Saint Petersburg, Russian Federation, indicate that the number of new HIV infections detected through mass screening in 1993 was twice as high as the annual mean for the preceding five years, with most infections attributed to heterosexual transmission. The rise in risky sexual behaviour in the Russian Federation as a whole is reflected in the rising rates of syphilis and gonorrhoea cases.

In Europe as a whole, transmission patterns differ widely from country to country. However, drug injection became the regionally most important transmission route for reported AIDS cases in 1990 and it has continued to predominate ever since.

There are over 2 million infected adults in Latin America and the Caribbean. Rates of infection are rising in Honduras and some other countries in Central America. Transmission through drug injection and through heterosexual sex continues to increase. In Argentina, for example, HIV prevalence among drug injectors ranges from 30 to 50 per cent, and in Brazil from 20 to 60 per cent. Studies among pregnant women attending antenatal clinics in 1990-1991 found prevalence close to 3 per cent in the Bahamas, and over 1 per cent in Santa Domingo (Dominican Republic) and São Paulo State (Brazil).

Sub-Saharan Africa is still the hardest hit by the epidemic. The region has already lost some 3 million inhabitants to AIDS, and over 8 million Africans aged 15 years or over are living with HIV and AIDS. The fact that heterosexual transmission has predominated since the outset explains why such a large part of the population is at high risk and why the region holds most of the paediatric infections in the world.

HIV prevalence in some parts of the urban population is currently over 30 per cent in countries of Eastern Africa, such as Ethiopia, Kenya, Uganda and the United Republic of Tanzania, and the epidemic is increasingly extending into what used to be the lower-risk rural areas. Recent data from national programmes also suggest that the epidemic is continuing to expand rapidly in Western and Southern Africa, including Botswana, Cameroon, Côte d'Ivoire, Mali, Nigeria, South Africa, Zambia and Swaziland.

However, there is evidence suggesting a stabilization in HIV infection rates in certain areas of Eastern and Central Africa that are farthest into the epidemic. In a rural district of south-western Uganda, the percentage of those aged 13 years or over acquiring HIV infection each year declined from 7.5 per cent in 1989-1990 to 4.6 per cent in 1993. While this decrease is not easy to

interpret, it may suggest changes in sexual behaviour. Evidence of change in sexual behaviour is also seen in the declining rates of cases of sexually transmitted diseases reported from Zimbabwe.

The regions with the fastest growing epidemic are South-central and and South-eastern Asia. Over 2.5 million Asians are infected with HIV and AIDS. Thailand is already faced with an AIDS problem comparable with that seen in some African settings, while India, whose population is larger than all African countries combined, has over 1 million infected adults. Infection is also spreading rapidly in parts of Cambodia, the Lao People's Democratic Republic, Malaysia, Myanmar, Thailand and Viet Nam.

In some places in India, Myanmar and Thailand, HIV prevalence has risen to 15 per cent among patients with sexually transmitted disease and 50 per cent among injecting drug users; in some parts of Yunnan province of China, over 80 per cent of drug users are infected. However, as has happened in countries elsewhere, the epidemic has not remained confined to these groups. In Thailand, cross-sectional studies of young men recruited into the military have shown a progressive increase in rates of HIV infection to 4 per cent in early 1990s with a delayed but parallel increase in prevalence in the general population, as measured by HIV rates among pregnant women who currently have rates of between 1 per cent and 2 per cent (Thailand, 1993). Overall, with close to half of the world population, Asia may soon have more new infections per year than any other region, and the severity of its epidemic may eventually surpass that of sub-Saharan Africa.

Global estimates and projections

The longer-term dimensions of the HIV/AIDS pandemic cannot yet be forecast with confidence. However, on the basis of available data on the current global status of the pandemic and recent trends in its spread, WHO has generated a plausible range of projected new HIV infections during the 1990s. In making projection of the future magnitude of the pandemic, WHO uses the lower limit of the estimated range of HIV prevalence for each region. The result of HIV/AIDS forecasting by WHO should thus be considered conservative.

During the current decade, WHO forecasts that about 10 million-15 million new cases of HIV infections may be expected in adults, mostly in developing countries. During the same period, WHO projects that as many as 5 million-10 million children will be HIV-infected through their mothers, the majority of them in sub-Saharan Africa. By the year 2000, 30 million-40 million HIV infections will have occurred, 90 per cent of which will be in developing countries. The projected cumulative total number of HIV-related deaths is predicted to rise to more than 8 million from its current total of 2 million. Estimates, by region, of the number of adults infected with HIV and alive as of mid-1994, and projections of the number who will be living with HIV infection in the year 2000 are shown in table 47. WHO also estimates that over 5 million children under age 10 will be orphaned by the end of the 1990s as a result of the HIV-related deaths of their parents. The number of orphans will increase further in the early years of the twenty-first century as a result of the death of those mothers who were HIV infected in the 1990s.

2. Sexually transmitted diseases

The sexually transmitted diseases epidemic in the developing regions is characterized by high incidence and prevalence; a high rate of complications; an alarming problem of antimicrobial resistance; and interaction with HIV infection. It is estimated that about 333 million curable cases of sexually transmitted diseases worldwide occur every year, most of which are occurring in developing countries (WHO, 1995b; see table 48).

TABLE 47. ESTIMATED AND PROJECTED HIV PREVALENCE IN ADULTS ALIVE, WORLD AND MAJOR AREAS

World and major areas	*Estimated HIV prevalence, mid-1994*	*Projected HIV prevalence, 2000*
Australasia, Europe and Northern America	>1.2 million	1 million
Latin America and the Caribbean	>1.5 million	>2 million
Africa	>8 million	>9 million
Asia	>2.5 million	8 million
World	13-14 million	>20 million

Source: World Health Organization, "The HIV/AIDS pandemic: 1994 overview" (WHO/GPA/TCO/SEF/94.4) (Geneva, 1994).

TABLE 48. NEW CASES OF CURABLE SEXUALLY TRANSMITTED DISEASES AMONG ADULTS, 1995

Major area and region	*Number of cases (millions)*
Africa	
Northern Africa and Western Asia	10
Sub-Saharan Africa	65
Asia	
Eastern Asia and the Pacific	23
Southern and South-eastern Asia	150
Australasia	1
Europe	
Eastern Europe and Central Asia	18
Western Europe	16
Latin America and the Caribbean	36
Northern America	14

Source: World Health Organization, *An Overview of Selected Curable Sexually Transmitted Diseases* (Geneva, 1995).

Sexually transmitted diseases have been a neglected area in public health in most of the developing countries despite the overwhelming fact of their impact on health, particularly of women and newborns. For several decades, sexually transmitted diseases have ranked among the top five conditions for which adults in many developing countries seek health-care services. In Cameroon, sexually transmitted diseases were fifth among the most common diseases reported by the health services and in Zambia, gonorrhoea ranked third after malaria and diarrhoea in frequency of cases seen in primary health care facilities. In most industrialized countries, on the other hand, there has been a spectacular decline in the incidence of sexually transmitted diseases, particularly gonorrhoea and syphilis.

The situation in industrialized countries

The epidemiologic trends of sexually transmitted diseases in various parts of the world are strikingly different. In the 1970s, gonococcal infections had reached peak levels in Western Europe, but in virtually all of those countries there has been a spectacular decline in incidence of gonorrhoea and syphilis. At the present time, there is a historic low rate in the incidence of gonorrhoea in most countries of Western Europe. Thus, approximately 40,000 cases were reported in Sweden in 1970, but there were fewer than 500 identified in 1992, a figure representing an 80-fold decrease (Cronberg, 1993).

Chlamydia infection is by far the most common bacterial sexually transmitted disease in Europe. For a long time its incidence was seriously underestimated because of a lack of diagnostic facilities. In countries with an active chlamydia control policy, such as Sweden, there has been a well-documented reduction in the number of cases, particularly in women (National Bacteriological Laboratory, 1991). This followed an initial increase in detected infections as a result of more intensive testing of various patient groups. It is intriguing that, despite a dramatic decline in gonorrhoea cases and a change in sexual behaviour, there are still many cases of genital chlamydia infection in Sweden, 50-80 times as many as gonorrhoea cases. Because chlamydia infection is often undetected but can be destructive for the reproductive tract, active case-finding using laboratory tests is a critical intervention for its control, as are primary prevention activities.

Northern America represents a far more complex case, with some geographical areas and large population groups having low levels of sexualy transmitted diseases and HIV, a situation similar to that in Western Europe, and other areas and groups continuing to experience an epidemic of sexually transmitted diseases and HIV similar to that in some parts of the developing world.

Quite unexpectedly, the United States experienced an epidemic of primary and secondary syphilis during the second half of the 1980s. The annual incidence of infectious syphilis peaked in 1990 at 20 per 100,000, the highest reported rates since the 1940s. In 1991, there was a reversal of a five-year increasing trend, with a decline of 14 per cent in incidence compared with that recorded in 1990 (United States, Department of Health and Human Services, Public Health Services, Division of STD/HIV Prevention, 1992). From 1982 to 1986, the national rate of infectious syphilis dropped steadily, largely because of a steep decline of the disease in men, mostly homosexual men.

The incidence rate of syphilis is highest among economically disadvantaged groups. Drug addiction, particularly to crack cocaine, and the exchange of sex for drugs have been closely associated with the epidemic. In addition, poor access to health care has probably played a role (Aral and Holmes, 1991). A dramatic increase in the incidence of congenital syphilis is a consequence of the latter: in 1983 the incidence was 4.3 per 100,000 live births, whereas in 1991 it was 25 times higher, at 103.4 per 100,000. Syphilis is illustrative of the current situation of sexually transmitted diseases in the United States: they are increasingly a health problem

for the economically disadvantaged and heterosexual minority populations.

The incidence rate of gonorrhoea remains high in the United States, at 250 cases per 100,000 population in 1991, compared with annual incidence rates in Europe of 5-40 per 100,000. However, as in Europe, there has been a steady decline since 1986, particularly among men.

Gonorrhoea increasingly appears as a sexually transmitted disease in the United States and Europe, concentrating around core groups of individuals with high-risk behaviour. This is documented in several studies on gonorrhoea in urban communities. Antibiotic resistance and serotyping are useful markers for following the spread of strains. In a study of an outbreak of penicillinase-producing *Neisseria gonorrhoeae* (PPNG) in Colorado Springs, United States, persons associated with street gangs were identified as a previously unrecognized core group. In that city, 0.1 per cent of the population between ages 18 and 44 accounted for 22 per cent of all gonorrhoea cases.

The situation in the developing countries

Reliable data on the incidence of sexually transmitted diseases are scarce, although numerous prevalence surveys have been conducted in developing countries, particularly in Africa. In general, the survey data show higher rates of gonorrhoea, syphilis and chlamydia cases than in comparable populations in Europe and Northern America. However, there is also a large variation in prevalence, with some populations having low levels of infection (Goeman, Meheus and Piot, 1991). It should be stressed that the prevalence rate of a bacterial sexually transmitted disease is the result of both sexual exposure of the population and the proportion of infections adequately treated.

During the past two years, several developing countries, such as Costa Rica, Thailand and Zimbabwe, have reported a declining incidence of bacterial sexually transmitted diseases (Piot and Islam, 1994). It is uncertain how to interpret these data, and it is premature to proclaim victory because even the lower number of cases represent high incidence rates. There may be several reasons, other than a true decline in incidence, for fewer cases of sexually transmitted diseases' being reported. Whereas there is no evidence for a change in health-care seeking behaviour in countries such as Thailand, the introduction of user fees in 1989 in Kenya and in 1992 in Zimbabwe resulted in a sharp decline in all outpatient attendance records and may explain the decrease in reported cases (Moses and others, 1992). An area in which there is no good news is that of the antimicrobial susceptibility of *N. gonorrhoeae and Haemophilus ducreyi.* These microbial agents progress seemingly inexorably towards more resistance against older classes of antibiotics, such as penicillin and tetracyclines, and also against more recent classes of antimicrobial agents, such as the fluroquinolones and third-generation cephalosporins.

Women, especially young women, are more vulnerable than men to infection with a sexually transmitted disease and to its complications (such as infertility, cancer and inflammatory diseases). The high prevalence of sexually transmitted diseases among women attending antenatal, family planning or gynaecological clinics in developing countries provides an indication of the extent of the problem of sexually transmitted diseases. For example, in studies in developing countries, up to 20 per cent of the pregnant women have been found to have gonorrhoea or chlamydia, up to 21 per cent to have syphilis (table 49).

TABLE 49. PREVALENCE OF SEXUALLY TRANSMITTED DISEASES AMONG PREGNANT WOMEN

(*Percentage*)

Country	*Gonorrhoea*	*Chlamydia*	*Syphilis*
Botswana	14	..	7
Chile	1	6	..
Gambia	7	7	17
Haiti	11	10.1	11
India	8	..	4
Kenya	18	20	4
Malaysia	0.54	..	3.3
Malawi	5	3	11
Senegal	19	12.5	20.8
South Africa	12	.11	7
Thailand	11.9	12.8	..
Zaire[a]	2	6	1

Sources: S. Bamber, K. Hewison and P. Underwood, "A history of sexually transmitted diseases in Thailand: policies and politics", *Genitourinary Medicine* (London), vol. 69 (1993), pp. 148-157; F. M. Behets and others, "Control of sexually transmitted diseases in Haiti: results and implications of a baseline study among pregnant women living in Cité Soleil shantytowns", *Journal of Infectious Diseases* (Chicago), vol. 172 (1995), pp. 764-771; R. C. Brunham and J. E. Embre, "Sexually transmitted diseases: current and future dimensions of the problem in the third world", in *Reproductive Tract Infections: Global Impact and Priorities for Women's Health*, A. Germain and others, eds. (New York, Plenum Press, 1992), pp. 35-58; A. Buve, M. Laga and P. Piot, "Where are we now? Sexually transmitted diseases", *Health Policy and Planning*

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Biologically, women are more susceptible to most sexually transmitted diseases than men, partly because of the greater mucosal surface exposed to a greater quantity of pathogens during sexual intercourse. In addition, the risk of transmission of sexually transmitted diseases, including HIV infection, is greater whenever the mucosa is damaged. As a result of such factors, most sexually transmitted diseases, including HIV infection, are transmitted more readily from men to women than from women to men. The fact that women with a sexually transmitted disease are more likely than men to be asymptomatic and are therefore less likely to seek treatment results in their being subject to chronic infections with more long-term complications and sequelae (see box 6).

The factors that contribute to the higher rate of sexually transmitted diseases, as well as HIV, in women are also related to economic and gender inequalities. In many developing countries, the fact that men migrate to cities for work results in concentrations of men away from their families with a demand for sexual services. Where cultures expect women to be passive and subservient to men, women have little or no control over decision-making relating to sexuality, nor do they have control over the sexual behaviour of their male partners, or over the use of condoms for the prevention of sexually transmitted disease and HIV or pregnancy. Where awareness of reproductive health problems and need for care is low, the symptoms of a sexually transmitted disease may not be recognized as such. Stigmatization and various cultural norms impede appropriate health-care-seeking behaviour, while acceptable and accessible services for diagnosis and treatment may not be available for those seeking health care.

B. Impact

Even though there are millions of people infected with HIV, this is only the beginning of the epidemic of illness associated with HIV and AIDS. In 1990, about half a million people required care for AIDS; in the year 2000 this figure will be 2.2 million. In hard-hit cities, AIDS patients already occupy half or more of hospital beds. Weak health and social systems of many countries are finding it difficult, if not impossible, to cope with the growing numbers of people falling ill. The epidemic is having devastating effects on individuals, families and entire communities.

For women, HIV infection has added its burden to the one they carry from diseases related to sexually transmitted diseases, pregnancy and childbirth. Women's risk of HIV infection has climbed steadily and the proportion of women with HIV and AIDS has increased dramatically. By 1994, women represented 40 per cent of all new AIDS cases; up to 50 per cent of all new cases of HIV infections were in women, mainly those aged 15-24

BOX 6. WOMEN AND SEXUALLY TRANSMITTED DISEASES

It is estimated that 165 million new cases of curable sexually transmitted diseases occur worldwide each year among women aged 15-49. Case numbers are distributed as follows, with many women having more than one disease:

Syphilis	6.5 million
Gonorrhoea	31.5 million
Chlamydia	47.0 million
Trichomoniasis	80.0 million

Sexually transmitted diseases in women are not easily identified or cured for a number of reasons:

(a) Over 50 per cent of sexually transmitted diseases in women are asymptomatic;

(b) Diagnosis is difficult;

(c) Women's access to services is frequently poor, because management of sexually transmitted diseases is rarely provided as part of an integrated approach to women's health needs.

This leads to complications and sequelae that seriously impair the health of women in developing countries and cause considerable morbidity and mortality. The following observations may be made:

(a) Sexually transmitted diseases cause pregnancy-related complications, sepsis, spontaneous abortions, premature birth, stillbirth and congenital infections;

(b) Of all maternal deaths, 1-5 per cent are due to ectopic pregnancy, mostly attributable to sexually transmitted diseases;

(c) Thirty-five per cent of cases of post-partum morbidity are attributable to sexually transmitted diseases;

(d) Almost two thirds of cases of infertility among women are attributable to sexually transmitted diseases;

(e) Of all gynaecological admissions, 17-40 per cent are due to pelvic inflammatory disease, mostly arising from sexually transmitted diseases;

(f) Almost half a million new cases of cervical cancer occur in the world each year; cervical cancer is the second most common cancer in the world;

(g) Worldwide, the disease burden of sexually transmitted diseases in women is more than five times that in men.

(World Health Organization, 1995a; Royal Tropical Institute, Southern Africa AIDS Information Dissemination Services and WHO, 1995). The situation of female vulnerability has become increasingly clear in Africa and Asia. By the year 2000, an estimated 14 million women will have been infected with HIV and about 4 million will have died of AIDS. Related to women's infection is the risk that their infants will be infected before or during childbirth or during breastfeeding. The risk of mother-to-infant transmission in Africa is about 35-40 per cent, while in the developed countries it is typically under 20 per cent.

Young people are particularly affected by HIV and AIDS. In fact, 50 per cent of HIV infections have occurred in age group 15-24. This has an important impact on the economy of many countries since the group most affected constitutes the bulk of the workforce. The socio-economic burden of sexually transmitted diseases, in terms of direct and indirect costs, is growing. The threat of AIDS to the economy again stems from the age group most affected, namely, young and middle-aged adults. The costs of production losses due to HIV/AIDS are generally thought to be 10-20 times greater than the direct medical cost. It is estimated that for adult women between ages 15 and 44 in the developing countries, sexually transmitted diseases, not including HIV infection, is the second most significant cause of burden of disease in women, after maternal morbidity and mortality (World Bank, 1993). In men, HIV infection ranks first, before tuberculosis, motor vehicle injuries and homicide and violence. If HIV infection is combined with conventional infection from sexually transmitted diseases, this combination accounts for nearly 15 per cent of all health lost for society in this critical age group (World Bank, 1993; Over and Piot, 1993).

As the principal caretakers in the home, women's burden is particularly great both during their spouse's illness and after his death, and many are battling HIV infection themselves. Where there is no social security and legal protection, women who become AIDS widows may face the loss of land, housing, goods, inheritance and custody over their children.

Unlike most other diseases, the majority of deaths due to AIDS occurs during the most productive years of life. For example, in Thailand, 78 per cent of reported AIDS cases are between ages 20 and 49 (WHO, 1995b). In some cities in the United States and sub-Saharan Africa, AIDS is the leading cause of death among adults between ages 15 and 49. HIV infection in Uganda was responsible for 44 per cent of all mortality, and 89 per cent of mortality in adults between ages 25 and 34, during 1989-1990 (Uganda, Ministry of Health, 1991). HIV has also been shown to be responsible for negating advances in child survival in countries such as the United Republic of Tanzania, where it is estimated that child mortality in 1995 will be equal to that in 1980, despite earlier decreasing trends resulting from immunization and diarrhoeal disease control programmes (United Republic of Tanzania, 1994).

C. Responses: some success stories

Over the past 10 years, the response to HIV/AIDS has focused mostly on prevention and care. Governments, non-governmental organizations, communities, associations and networks of people living with HIV/AIDS, and international organizations, as well as the health, education, public, private and other sectors, have worked in partnership to develop a response to the epidemic.

Despite much scepticism at the beginning of the AIDS epidemic, it is clear that both large-scale sexual behaviour change and massive condom use are possible. Social marketing of condoms in association with interventions, which have been designed to promote safe sex through condom use, has resulted in an increase in condom distribution. Condom sales through social marketing in sub-Saharan Africa increased from 1.3 million in 1986 to more than 77 million in 1993, representing 55 per cent growth in distribution in 1993 alone. "Maximum", provided by the Zambia Social Marketing Project, is the most popular and widely available condom in Zambia (Zambia, Ministry of Health, 1994; Population Action International, 1995). Condom sales grew from 4.6 million in the first year of the project to 6.6 million in the second year. Almost 50 per cent of the condom users indicated that they had used a condom for the first time since *Maximum* was introduced. Similar experiences have been reported in other countries as well.

Approaches using a variety of mass media channels of communication have also been effective. In countries such as France, the Netherlands and Switzerland, the level of condom use among young people has increased tremendously as a result of persistent communication efforts. Moreover, it can be said that the communication

programmes resulted in an overall change in the social norms among young people in favour of condom use.

Initiatives focusing on policy change have also been effective. In Thailand between 1989 and 1993, the percentage of commercial sex acts protected by condoms increased from 14 to 94 per cent as a result of the "100 per cent condom" policy initiative by the Ministry of Public Health (Hanenberg and others, 1994). Cases of the five major sexually transmitted diseases declined by 69 per cent among men and female prostitutes combined. This occurred because of the expansion of clinic facilities for sexually transmitted diseases and the number of clients served.

In Kinshasa, Democratic Republic of the Congo (formerly Zaire), the emphasis was put not only on condom use but also on user-friendly care for female prostitutes with a sexually transmitted disease which, if untreated, greatly facilitates HIV transmission. While condom use did not attain 100 per cent levels, it rose dramatically as new HIV infections decreased (Laga and others, 1994).

Similarly, in Sonagachi, Calcutta, India, an initiative focusing on a "red light" district using peer education, condom distribution and the provision of timely services (diagnosis and treatment) for sexually transmitted diseases has resulted in improved service utilization (Fox, 1994). Condom distribution increased from 2,500 to 62,000 per month and regular condom use among sex workers increased from almost zero to 42 per cent within a period of just one year.

Improved and integrated care for sexually transmitted diseases, through primary health care services, reduced HIV incidence by about 40 per cent in one rural population in the United Republic of Tanzania (Grosskurth and others, 1995).

Service-based approaches, such as those of the family planning association of Colombia, known as PROFAMILIA, have shown that providing family planning and AIDS/sexually transmitted diseases services in an integrated way is feasible and beneficial to clients. In fact, the number of clients served by PROFAMILIA continues to increase each year (Population Action International, 1995). It was demonstrated that activities of PROFAMILIA in the area of AIDS and sexually transmitted diseases do not affect either contraceptive sales or the image of the family planning programme. Moreover, information about AIDS and sexually transmitted diseases was in high demand and both community outreach to family planning audiences and mass media campaigns for the general public increased the knowledge of AIDS and sexually transmitted diseases.

In Lusaka, Zambia, since the beginning of the project on prevention and control of maternal and congenital syphilis, there has been a steady increase in the number of pregnant women screened for syphilis (United Nations Children's Fund, 1994). In less than six months, the percentage of antenatal clinics testing for syphilis has risen from a baseline level of 20 to 100. Other remarkable accomplishments are in rates of treatment of syphilis sero-reactives women and their sexual partners. The proportion of syphilis sero-reactives treated rose from 33 per cent in January 1994 to 100 per cent in August 1994. Case management of their sexual partners increased from about 5 to 65 per cent. Such a massive male response to notification arising from antenatal care clinics is uncommon in Zambia. It offers a unique opportunity to introduce primary prevention activities, and sexual and reproductive counselling for the family.

There are many other examples of successful programmes and interventions in the prevention and care of HIV/AIDS and sexually transmitted diseases. Communication and education programmes in schools and the workplace, peer education, service-based approaches to sexually transmitted diseases, voluntary counselling and testing programmes, condom social marketing and community distribution programmes, mass media programmes and a variety of others, have been successful in different countries.

D. Sexually transmitted diseases, HIV/AIDS and reproductive health

There are important overlaps between the prevention of HIV/AIDS, sexually transmitted diseases, care programmes and reproductive health programmes. Yet, there is often a "marginalization of AIDS" in family planning programmes and in maternal and child health programmes. This means that many opportunities for the prevention of sexually transmitted diseases and HIV/AIDS are lost. Conversely, HIV/AIDS programmes often neglect sexually transmitted diseases and

more general reproductive health issues when developing their prevention and care activities.

The current emphasis on reproductive health began years ago when human rights and women's health advocates began to question the rationale of traditional policies that mainly focused on reducing population growth through the provision of family planning services. During the 1980s, attention was focused on the child and child survival strategies and programmes that were developed with the objective of reducing infant and child mortality. Thus, family planning and child survival programmes were dealt with separately and with great intensity and investment of international and national efforts and resources. The combination of maternal and child health and family planning (MCH/FP) represents the first attempt to bring the two components together and deal in a more comprehensive manner with aspects of reproductive health, such as childbirth, child health and family planning. The increasing prevalence of sexually transmitted diseases and AIDS sparked further discussion on the best ways of providing MCH/FP services and management of sexually transmitted diseases and HIV. Client expectation also began to change overs the years. At the International Conference on Population and Development held in Cairo in 1994, there was consensus among national delegations on the need for a more comprehensive, client-centred view of reproductive health and for the implementation of reproductive health programmes in addition to family planning.

To translate broad and ambitious reproductive health goals into programmes that meet clients' needs, policy makers, who are working with programme managers, health-care advocates, service providers, the clients themselves and others, need to determine, from an array of proposed reproductive health options, what package of services to provide. Programmes will have to expand the range of services offered and at the same time programmes have to increase access to and improve the quality of existing services. Policy makers must decide on the structure of expanded reproductive health programmes, funding requirements and the sources of funding. These decisions will be difficult, since programmes will require coordinated efforts and will compete with other priorities for limited domestic and international funding.

E. Some key issues

1. *Integration, functional linkages and vertical programmes*

Most countries have programmes dealing with particular components of reproductive health. Generally, they have tended to be fragmented and vertical, with a focus either on a particular disease such as HIV/AIDS or a sexually transmitted disease, or on a general area such as family planning or maternal and child health. Vertical programmes (family planning, HIV/AIDS, maternal and child health and so on.) are often overlapping and interrelated in terms of the problems they are trying to address and with regard to the populations they serve. Because of the interdependence of services, a more integrated approach, establishing linkages between information and various services for promotion and prevention, as well as care, would have many advantages. Such an approach would improve access to and quality of services, and be more responsive to clients' needs, more cost-effective, more humane and comprehensive and more likely to reach groups that are currently being poorly served.

In developing countries, the need for integrated services is even more acute. Because so few facilities are available for care, the services should not be fragmented. Moreover, access to services is usually more cumbersome and time-consuming in settings lacking resources and thus the community may seek help from various sectors or may not seek help at all. Therefore, when clients make the effort to obtain one particular service, the full range of preventive care should be offered. Family planning services and maternal health/antenatal care services offer an important opportunity for both diagnosis and treatment of sexually transmitted diseases, as well as the provision of information about their prevention, including safer sexual behaviour and related services, such as the supply of condoms.

Integrated services at the delivery point do not exclude the development of specific programmes, such as in HIV/AIDS and sexually transmitted diseases, family planning and MCH, at central level. There are many similarities between programmes, but there are also important differences that call for the development of policy and technical guidance, interventions and research

unique to specific programmes. For example, services need to be linked at the delivery point to provide good management of sexually transmitted diseases, family planning, maternal and child care, and antenatal and post-natal care for a mother, but specific technical guidance may need to be developed at a higher level using specific expertise so as to ensure appropriateness and quality. In Botswana, for example, as in many other countries in sub-Saharan Africa, all health programmes are integrated at the delivery point through the district health system while well-developed vertical programmes exist at the central level developing policy, providing technical guidance and support, and instituting monitoring, surveillance and evaluation in collaboration with the district management. Similarly, at the international level, integration should not mean merging all programmes into one but rather establishing linkages and collaboration between programmes in order to avoid duplication and to be more cost-effective.

Depending on the specific situation in each country, integration of any two or more programmes (including in HIV/AIDS, sexually transmitted diseases and MCH/FP) may be necessary for successfully implementing all programmes and fulfilling the needs of the population. Health problems are not the same across societies and cultures; health and social services are organized differently, thus, different forms of integration or interlinkages may be appropriate. At different levels and in different situations, this may include improved and coordinated national planning; common development of technical guidelines; and shared facilities and personnel and joint delivery of services at community level.

2. *Improving quality*

With limited resources for health and social development programmes, there is an increasing pressure on policy makers and health providers to make more effective use of these resources, especially in poor settings in developing countries. Policy makers are faced with having to make difficult choices about resource allocation and the quality and number of new and existing health programmes.

With limited resources, the focus is on improving the quality of the services that are already provided. The following should be noted:

(*a*) A first option would be to improve the quality of the already existing services by integrating or establishing functional linkages between services. Quality of services could be improved by training providers, ensuring timeliness of responses and of gender- and age-sensitive services, improving supervision and monitoring, and providing for backstopping to ensure adequate supplies and materials;

(*b*) The second option for improving quality would be the adoption of a community-oriented flexible concept of health that would allow different combinations for organizing care and services in order to broaden access to services according to the real needs of the population at a particular site;

(*c*) Another extremely important area for improving quality would be that of communication and education programmes. Communication and education programmes should be designed to take into account the many factors that motivate people to change behaviours and maintain safer practices.

F. PRIORITY INTERVENTIONS AND ACTIONS

There is no single strategy for reaching the objectives of prevention and control of sexually transmitted infections. A global strategy will need to be translated into various approaches at national and local levels, and simultaneous activities will be needed on a variety of fronts. Nevertheless, there are guiding principles that apply everywhere. The strategies for the attainment of reproductive health, and the prevention and care of HIV/AIDS and sexually transmitted diseases must be based on the underlying principles of human rights and the operational principles of national ownership; a participatory process involving providers, users and planners in the planning, implementation and evaluation of programmes; and multisectoral action, with key partners contributing according to their comparative advantages.

Response to the challenge of reproductive health, including HIV/AIDS and sexually transmitted diseases, should focus on:

(a) *Establishment of a supportive, enabling environment.* A supportive environment includes a number of actions to change the social, economic, cultural and political environment in a manner conducive to better reproductive health and HIV/AIDS and sexually transmitted diseases programmes. It includes a variety of

possible actions. There is a strong need for advocacy to promote interventions and action. Advocacy should be geared towards a greater understanding of the magnitude of the problem and the need for action internationally and nationally. The soliciting of international community support is needed, including that of agencies and non-governmental organizations, to increase resources, develop some common guiding principles and establish collaboration and partnerships for programme implementation. Advocacy should draw the attention of communities and decision makers to the issues of reproductive health, HIV and sexually transmitted diseases, and point towards nationally relevant solutions. National advocacy should provide the rationale for greater allocation of national resources for action in sexually transmitted diseases and HIV/AIDs;

(b) *Development of relevant information, education and communication (IEC) programmes to build knowledge, motivation and skills.* IEC programmes need to be developed based on a full understanding of the individual and the broader socio-economic factors that influence individual, institutional and group behaviour. They should focus on fostering health and responsible behaviour. IEC could also be used to promote ideas of equitable and mutually respectful and responsible gender relations, to increase male responsibility in pregnancy and the prevention of sexually transmitted diseases and HIV, and to promote informed reproductive health choices, especially for women. The overall programme should aim to develop individual skills in making informed decisions and to create a demand for timely and quality services;

(c) *Strengthening of health services, improvement of delivery and quality, and establishment of strong linkages across services*:

(*i*) *Early and prompt management of bacterial sexually transmitted diseases:*

a. Bacterial sexually transmitted diseases are treatable and early case management should be a basic strategy of every sexually transmitted diseases programme. Case management entails more than giving a pill or an injection. A patient contact for a sexually transmitted disease should provide an opportunity for education about risk reduction and condom use;

b. In most settings, including in the industrialized world, laboratory tests are not available to support a treatment decision on the spot. In addition, current laboratory tests, with the exception of microscopic study and the rapid plasma reagin test, are too expensive for many populations. For these reasons, simple flow charts using syndromic approach are being used increasingly at the primary care level. The development of cheap and simple diagnostic tests should also be high in the research agenda;

(*ii*) *Establishing functional linkages with or integrating prevention and care programmes for sexually transmitted diseases and HIV into family planning and MCH services, including primary prevent-ion of reproductive tract infections and sexually transmitted diseases through interpersonal counselling at the health facility and community outreach to reach underserved populations and promote supported environments*;

(*iii*) *Targeted interventions for populations at higher risk.* The awareness of reproductive health problems, and need for care and availability of services in high-risk groups is generally lacking. Stigmatization, economic condition and various sociocultural norms impede appropriate health-care seeking behaviour, while acceptable and accessible services for diagnosis and treatment may not be available for those who want to seek health care;

(*iv*) *Provision of care and support for those who are suffering from AIDS.* Basic public-sector services can be supplemented by unconventional approaches to service delivery such as "outreach" and "community and home-based" care, as well as efforts to

improve the private and traditional care-delivery systems.

G. Research and development needs

There are two major areas for priority research:

(a) *Research to develop appropriate and effective interventions, including operational research.* Such research should cover, for instance:

(*i*) Research on service delivery, such as on what the barriers are and how to improve access to services by young people; on how and where to provide confidential voluntary counselling and testing services; on effective ways of integrating sexually transmitted diseases services into family planning or primary health care; and operational research on improving supplies and storage of drugs, condoms and so forth;

(*ii*) Research on appropriate communication approaches, such as exposure to different channels of communication, on reach and effectiveness of programmes using various channels; on perceptions and understanding of messages; and on effectiveness of peer education or the school AIDS education curriculum;

(*iii*) Policy analysis and research to assess the effect of programmes, including research on effectiveness of policies and regulations promoting condom use, health policies and so forth;

(b) *Research on new tools and technologies:*

(*i*) Research on new technologies that prevent HIV, sexually transmitted diseases and pregnancy, and that prevent sexually transmitted diseases and HIV without preventing pregnancies (microbicide, virucide, female condoms, new barrier methods and so on);

(*ii*) Research on optimal strategies for diagnosis and management of asymptomatic reproductive tract infections, including sexually transmitted diseases;

(*iii*) Development of simple, cost-effective diagnostic tests for reproductive tract infection and sexually transmitted diseases;

(*iv*) Operational research to identify new ways of motivating people to adhere to safe and responsible sexual practices; mobilizing community networks and support systems to facilitate informed decision-making and appropriate use of reproductive health services; and strengthening of environments to facilitate responsible sexual behaviour.

It is clear that there is no simple solution for the prevention and care of reproductive tract infection, sexually transmitted diseases and AIDS, nor for meeting all reproductive health needs. What is needed is a right combination of approaches, combining prevention and care, and combining medical, behavioural and societal, and contextual interventions. Suitable and highly cost-effective interventions are available. Much creativity and energy are needed to make use of the momentum from these opportunities to contain HIV/AIDS and sexually transmitted diseases, and to ensure improved sexual and reproductive health for all.

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VII. REPRODUCTIVE RIGHTS

Reproductive health and reproductive rights are relatively new concepts in the area of population policy. They are also a particularly controversial topic. They relate to the most intimate and personal areas of life, namely, sexuality, sexual relations and reproduction, as well as to matters that are central to how the members of a family relate to one another and to how they perceive themselves. Moreover, they touch on matters that in many societies are inextricably tied to morality, tradition, and cultural and religious values and that arouse strong feelings in many persons. They are also linked to the status and empowerment of women, matters which themselves provoke controversy in many countries.

A. DEFINITIONS

Reproductive rights may be viewed as those rights, possessed by all persons allowing them access to the full range of reproductive health care services. In particular, as formulated at the last three international conferences on population and at the Fourth World Conference on Women, these rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so. They also include the right to attain the highest standard of sexual and reproductive health and the right to make reproductive decisions free from discrimination, violence and coercion, as expressed in human rights documents. Furthermore, the Programme of Action of the International Conference on Population and Development (United Nations, 1995, chap. I, resolution 1, annex) and the Platform for Action (United Nations, 1996, chap. I, resolution 1, annex II), adopted by the Fourth World Conference on Women make clear that all of these rights are grounded in national laws, international human rights instruments and other international consensus documents.

Reproductive rights are closely tied to other internationally recognized rights that have an impact on reproductive rights and that, in turn, are influenced by reproductive rights. Examples include the right to receive education, the right to equal status within the family, the right to be free from domestic violence and the right not to be married until physically and psychologically prepared for such an event. Indeed, these rights are in some sense fundamental to the exercise of reproductive rights.

Like most rights, reproductive rights are accompanied by corresponding responsibilities. As formulated in the Programme of Action of the International Conference on Population and Development, these responsibilities include consideration of the needs of living and future children and the responsibilities of couples and individuals towards the community at large. The promotion of the responsible exercise of these rights by all people should be the fundamental basis for government- and community-supported policies and programmes in the area of reproductive health, including family planning. Thus, Governments also have the responsibility to promote the responsible exercise of reproductive rights. Nonetheless, in the final analysis, reproductive rights cannot be compromised by resorting to coercion of any kind.

B. FOUNDATION OF REPRODUCTIVE RIGHTS

Although the concept of reproductive rights is of relatively recent origin, there is ample support for such rights in existing international documents and human rights treaties. For example, as noted earlier, the final documents adopted at all three international conferences on population as well as at the Fourth World Conference on Women strongly assert reproductive rights. Drawing on the language originally formulated at the 1968 International Conference on Human Rights, held at Tehran in 1968, each document provides that all couples and individuals have the right to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so. While the documents are not legally binding in terms of international law, they do wield great normative authority and have been endorsed by the vast majority of Governments.

Formal international treaties that are legally binding also support the concept of reproductive rights, if not by name. For example, the International Covenant on Civil and Political Rights (the Political Covenant) (see General Assembly resolution 2200 (XXI), annex), contains a number of provisions that are relevant to the right to make voluntary decisions about bearing children. The Covenant guarantees the right to marry and found a family; the right not to be subjected to cruel, inhuman or degrading treatment or medical experimentation without free consent; the right to liberty and security of person; and the right not to be subjected to arbitrary or unlawful interference with privacy or family. Similarly, the International Covenant on Economic, Social and Cultural Rights (the Economic Covenant) (see Assembly resolution 2200 A (XXI),annex)—the sister treaty to the Political Covenant–recognizes the right of persons to enjoy the highest standards of health and calls for special attention to be given to women before and after childbirth and to the reduction of infant mortality (Boland, 1995b; Cook, 1995).

With the adoption of the Convention on the Elimination of All Forms of Discrimination against Women (the Women's Convention) (General Assembly resolution 34/180, annex) in 1979, these reproductive rights were made explicit and strongly endorsed. The Convention guarantees, on the basis of equality of men and women, the right of access to information to ensure the health and well-being of families, including information and advice on family planning; the right, in employment, to protection of the function of reproduction; the right of access to health-care services, including those relating to family planning; and the right to decide freely and responsibly on the number and spacing of children and to have access to the information, education and means needed to exercise this right. The Convention also calls for special protection to be given to women with respect to pregnancy, confinement, post-natal care and nutrition (Boland, 1995a; Cook, 1995).

National laws also support reproductive rights. Laws relating to maternal and child health care, access to the various forms of family planning, sex education and the treatment and prevention of sexually transmitted diseases are of course common in both developing and developed countries. What is perhaps of even greater interest is the fact that a number of countries have incorporated the language of international documents on the right of couples and individuals to plan their families into their constitutions. These countries include Colombia, Guatemala, Mexico, Paraguay, Slovenia and the former Yugoslav Republic of Macedonia. Other countries have used their constitutions to guarantee the rights to health, in particular maternal and child health, and to the protection of motherhood. Still other countries have incorporated reproductive rights-related language into population policies.

C. Key issues with respect to reproductive health and reproductive rights

1. *Family planning*

One of the cornerstones of the concept of reproductive rights is the right of access to methods of family planning. This idea, which has been fundamental to definitions of reproductive rights from the beginning, is formulated repeatedly in population and human rights documents as the right to have the "information and means" to decide freely and responsibly the number and spacing of children. Without such access, reproductive rights have, practically speaking, no real meaning.

The right of access to methods of family planning has several major components. The first is physical access. Are contraceptives made available to those who want to use them and, if so, in what manner are they made available? Although access to contraception has increased steadily in recent years, there are still many barriers. It is estimated that some 120 million women of childbearing age do not have adequate information and affordable family planning services (United Nations, 1995, chap. I, resolution 1, annex, para. 7.13). Reasons for this lack of access are numerous, including manufacturing and importation deficiencies or restrictions; poor distribution systems; lack of proper health centres and personnel to dispense contraceptives; lack of means to transport persons to existing centres; and lack of government commitment and funding. These problems are particularly acute in the rural areas of many countries where health services are scarce (Sen, Germain and Chen, 1994)

Even when contraceptives are physically available, there are other barriers to their use. First, the ways in which contraceptives are dispensed often do not meet the requirements of acceptors. Many times persons who use contraceptives are not given a choice among a number of different methods that allows them to make the decision regarding which to use on the basis of their personal

BOX 7. CHRONOLOGY OF REPRODUCTIVE RIGHTS FROM TEHERAN TO BEIJING

1968: "Parents have a basic human right to determine freely and responsibly the number and spacing of their children."[a]

1974: "All couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so; the responsibility of couples and individuals in the exercise of this right takes into account the needs of their living and future children, and their responsibilities towards the community."[b]

1984: "Governments are urged to ensure that all couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so; couples and individuals in the exercise of this right should take into account the needs of their living and future children and their responsibilities towards the community."[c]

1994: "... reproductive rights embrace certain human rights that are already recognized in national laws, international human rights documents and other consensus documents. These rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so, and the right to attain the highest standard of sexual and reproductive health. It also includes their right to make decisions concerning reproduction free of discrimination, coercion and violence, as expressed in human rights documents. In the exercise of this right, they should take into account the needs of their living and future children and their responsibilities towards the community."[d]

1995: "... reproductive rights embrace certain human rights that are already recognized in national laws, international human rights documents and other consensus documents. These rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so, and the rights to attain the highest standard of sexual and reproductive health. It also includes their right to make decisions concerning reproduction free of discrimination, coercion and violence, as expressed in human rights documents. In the exercise of this right, they should take into account the needs of their living and future children and their responsibilities towards the community."[e]

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[a] *Final Act of the International Conference on Human Rights, Teheran, 22 April to 13 May 1968* (United Nations publication, Sales No. E.68.XIV.2), chap. II, para. 16.

[b] *Report of the United Nations World Population Conference, 1974, Bucharest, 19-30 August 1974* (United Nations publication, Sales No. E.75.XIII.3), chap. I, sect. B, para. 14 (f).

[c] *Report of the International Conference on Population, 1984, Mexico City, 6-14 August 1984* (United Nations publication, Sales No. E.84.XIII.8 and corrigenda), chap. I, sect. B.III, recommendation 30.

[d] *Report of the International Conference on Population and Development, Cairo, 5-13 September 1994* (United Nations publication, Sales No. E.95.XIII.18), chap. I, resolution 1, annex, chap. VII, para. 7.3.

[e] *Report of the Fourth World Conference on Women, Beijing, 4-15 September 1995* (United Nations publication, Sales No. E.96.IV.13), chap. I, resolution 1, annex II, para. 95.

circumstances. Another factor is cost. Availability is of little consequence if contraceptives are too expensive for anyone to use, except the well-off.

The other major component of the right of access to family planning relates to the quality of contraceptives and the quality of care of those who receive them. Many contraceptives have potentially adverse side effects and may cause complications. Persons using them must be adequately informed of their properties, must be trained in their use, must be counselled as to the side effects and must be examined as to their suitability. They must also receive follow-up care. Furthermore, the informed consent of users must be obtained. Situations have occurred where persons had not been made fully aware of the nature of the contraceptive that they were receiving, and may have even been participating without their knowledge in trials of new forms of contraceptives. This

matter is of particular concern when the contraceptive method used is irreversible, as is the case with most sterilizations.

The issue of incentives (and disincentives) is also of importance to the realization of the right of access to contraception. Such incentives have taken many forms: cash payments, gifts of clothing, denial of or entitlement to social benefits, monetary penalties and so forth. The question raised by incentives concerns whether they are of such a nature as to compromise the choice regarding the number and spacing of children. The question is difficult to answer. What is known is that most have not been effective in achieving their goals. In addition, some clearly cross over the line between inducement and coercion. Examples include punishment with respect to employment or wages for having diverged from family planning guidelines, and the provision of a small cash or clothing benefit to a poor person for being sterilized.

2. Adolescent issues

Adolescent reproductive behaviour has become an emerging worldwide concern, as a lowering of the age at menarche and of the age at entry into sexual activity has occurred at a global level (World Health Organization, 1993). There are significant numbers of pregnancies, both wanted and unwanted, among adolescents, who are also having many abortions and have a high incidence of sexually transmitted diseases. Moreover, in many countries, adolescents are vulnerable to sexual exploitation, particularly if they are poor. Adolescents of both sexes who are forced into prostitution are at great risk, particularly in tourist areas where young sex partners are sought, including children, on the assumption that they are less likely to be HIV-positive (World Health Organization, 1995).

Several key issues in regard to the reproductive rights of adolescents pertain to marriage. According to article 16 of the Universal Declaration of Human Rights (General Assembly resolution 217 A (III), "Men and women of full age...have the right to marry and to found a family", and "Marriage shall be entered into only with the free and full consent of the intending spouses". In many parts of the world, however, women's basic human rights are violated when they are given in marriage without their consent (or where family pressure results in coerced consent) (Freeman, 1991). Laws establishing a minimum age at marriage are nearly universal, with the most common minimum ages being 18 for males and 16 for females. Women's right to delay marriage until they are physically and emotionally ready can have a significant positive impact on women's status and reproductive life. However, despite legislation designed to eliminate the practice, girls in many countries marry shortly after puberty and are expected to start having children almost immediately, in part because of a lack of alternative opportunities. Early childbearing results not only in biomedical problems (for example, anaemia, retarded foetal growth, premature birth, complications during labour, low birth weight, perinatal mortality), but also in reduced educational and economic opportunities for young mothers (World Health Organization, 1995). Indeed, formal education of girls frequently ends in marriage or pregnancy.

A problem with many laws establishing a minimum age at marriage is that they are set too low for women and are lower for women than for men, suggesting that women need fewer years to prepare for marriage as their duties will be confined to childbearing and domestic roles (Freeman, 1991). Over the past two decades, more than 50 countries have altered their laws on the minimum legal age for marriage, although primarily in an attempt to reduce fertility and less from a reproductive rights standpoint. However, age-at-marriage laws are often not enforced. In some parts of the world, such as in Africa, the legal age for marriage is often high, reflecting the tendency to adopt European legal standards, yet actual age at marriage is low. Although the effect on sexuality and fertility of a legally established minimum age for marriage is not entirely understood, it would appear that changing the law has mainly a symbolic, although a reinforcing, role and that changes in the age at marriage typically occur over time and are a product of changes in the economic, social and cultural conditions that tended to encourage early marriage (Paxman and Zuckerman, 1987).

A second key issue with regard to adolescent reproductive behaviour is access to reproductive health information, education and services. Since the subject of adolescent sexuality remains a sensitive subject in most societies, there is lack of knowledge among young people of the risks associated with premature and unprotected sexual activity. A growing consequence of uninformed and unprotected adolescent sexual activity is the increased exposure to sexually transmitted diseases, including human immunodeficiency virus (HIV) infection (World Health Organization, 1989).

Most countries do not have coherent policies for the protection and maintenance of reproductive health in adolescents, in part because of the sensitivity of the subject. The diversity of laws and policies related to adolescent sexual behaviour is so great that it is difficult to generalize about the matter. Whereas some countries make sex education compulsory, others prohibit or limit sex education. In other countries, health education and information for adolescents are promoted, but little is done to give adolescents access to reproductive health services, particularly if they are unmarried. Indeed, some countries have statutory or de facto restrictions based on age or gender concerning access to information on sexuality and contraception. Health-care providers may often refuse to treat minors without parental consent, unless the law clearly allows it. In other countries, schools and other institutions that work with adolescents are wary of providing sex education or otherwise discussing issues related to sexuality, owing to social and cultural concerns about protecting young people, particularly young women, from sexual experience.

3. *Female genital mutilation*

According to the World Health Organizaton (WHO), an estimated 85 million-115 million women have undergone the procedure of female genital mutilation, euphemistically referred to as "female circumcision" (World Health Organization, 1994a). Annually, some 2 million girls submit to the practice. Female genital mutilation is a most dramatic form of gender-specific violence, since it involves the use of dangerous weapons (for example, scalpels, knives, razor blades), causes permanent physical damage and sometimes death, and is targeted in the most gender-specific way possible at the female genitalia (Fitzpatrick, 1994).

One factor that distinguishes genital mutilation from other forms of violence against women is its non-universality. Most of the girls undergoing female genital mutilation live in 28 African countries, with smaller numbers in a few Asian countries. However, via patterns of immigration the practice is being spread, and female genital mutilation currently takes place in Australia, Canada, Europe, and the United States of America (World Health Organization, 1995).

The practice is usually carried out before menarche and sometimes between eight and nine years of age. Physical health consequences vary according to the severity of the method. The health consequences of infibulation, the severest form (which predominates in Djibouti, southern Egypt, the coastal areas of Ethiopia, Somalia, and the northern Sudan), include infection, tetanus, shock, haemorrhage, septicaemia and urine retention; longer-term physical complications include urinary and reproductive tract infections which may result in infertility, menstrual disorders, vesicovaginal fistulas and difficulties during childbirth, including obstructed labour (World Health Organization, 1994a).

Adherents of female genital mutilation, which is essentially a cultural rather than a religious practice, typically cite "tradition" as a justification for its continuance. According to WHO, additional reasons for the practice of female genital mutilation include purification, family honour, hygienic concerns, aesthetic issues and the fact that such mutilation is believed to protect virginity and prevent promiscuity, to increase the sexual pleasure of the husband, to give rise to a sense of belonging to a group, to enhance fertility and to increase opportunities for marriage (World Health Organization, 1994a). Indeed, in societies where the practice is prevalent, an uncircumcised girl may be considered unmarriageable. Moreover, women in these societies are often not aware that female genital mutilation is rare in most countries of the world.

There is no comprehensive, country-by-country data collection on female genital mutilation. The Sudan remains the only country in the world with reliable prevalence data, as a result of the inclusion of a module on the prevalence of female genital mutilation in the Sudan Demographic and Health Survey 1989-1990 (Sudan, Ministry of Economic and National Planning, Department of Statistics, 1991; Toubia, 1995). The survey collected data not only on the prevalence of female genital mutilation but also on the attitudes of women and men towards the practice. Similar modules are being introduced in surveys in several other African countries.

The only codified prohibition of female genital mutilation in international human rights law is contained in article 24 (3) of the Convention on the Rights of the Child (General Assembly resolution 44/25, annex), which rather mildly requires States parties to "take all effective and appropriate measures with a view to abolishing traditional practices prejudicial to the health of children" (Fitzpatrick, 1994). The Programme of Action of the International Conference on Population and Development and the Platform for Action adopted

by the Fourth World Conference on Women further addressed the issue and called on the international community to eliminate the practice, underscoring that it violates basic human rights and constitutes a lifelong risk to women's health.

There is very little legislation passed by individual countries to prohibit female genital mutilation. For one thing, given that the practice is deeply rooted in some societies, there is a fear that legislation will merely force it underground. Legislation may be an effective step towards the prevention of female genital mutilation in countries where a small minority, such as immigrants in Western countries, are practitioners (Toubia, 1995). However, if the majority in society remain convinced that female genital mutilation serves the common good, legal sanctions may be counter-productive. Criminalization and regulations are effective only once a substantial body of public opinion against the practice has been generated.

Even in instances where there is the political will to act, it is very difficult for Governments to influence these practices at the level of their sociocultural roots. Indeed, customary sanction for the practice of female genital mutilation may be strong enough to override state efforts to eradicate the practice (Ahmed An-Na'Im, 1994).

Opponents of female genital mutilation agree that what is required are information and educational campaigns targeting young people, traditional practitioners, circumcisers, community workers, village chiefs, religious leaders and women's associations, using both traditional and modern means of communication. Moreover, there is a need to find alternative sources of income for those earning their living from the practice. In societies where female genital mutilation forms part of initiation rites that are in general positive and should be preserved, the practice should be excluded. Lastly, research should be conducted on all aspects of female genital mutilation, including incidence, prevalence, the main reasons why it continues to be practised in certain societies, health consequences and successful interventions to combat it (World Health Organization, 1994a).

4. *Sexually transmitted diseases, including HIV/AIDS*

The awareness of sexually transmitted diseases as a major threat to public health has increased dramatically since the early 1980s as a result of changes in epidemiology, increasing knowledge of the serious medical sequelae involved and the advent of the human immunodeficiency virus/acquired immunodeficiency syndrom (HIV/AIDS) pandemic. Sexually transmitted diseases that cause ulcerative lesions (for example, chancroid and syphilis) are seen as increasing problems, since they facilitate both the acquisition and transmission of HIV (World Health Organization, 1994b). As the receptive partners, women are biomedically more at risk for acquiring HIV infection and other sexually transmitted diseases, and the risk is magnified in adolescent girls. To compound matters, young girls are sometimes compelled to have first intercourse by physical force, and the ensuing genital trauma results in cuts that increase the risk of infection (World Health Organization, 1994b). In addition, sexually transmitted diseases in women are more likely to have hidden symptoms or to be asymptomatic.

As WHO has noted, the sexual and economic subordination of women hastens the spread of sexually transmitted diseases and the HIV/AIDS pandemic (World Health Organization, 1994b). In many cultures, women do not have the power to insist on safe and responsible sex practices and have little access to information and services for prevention and treatment. Women are also vulnerable to coerced sex, including rape and other forms of sexual abuse, or they may be forced to rely upon prostitution for economic survival.

Many women and adolescents tend to avoid clinics for sexually transmitted diseases out of fear of being stigmatized. Moreover, despite the fact that the highest rates of sexually transmitted diseases are among those aged 15-29, and that adolescents have increased biological susceptibility to certain sexually transmitted diseases, the access of adolescents to treatment facilities is restricted in many countries. Given the fact that adolescents tend in general to underutilize health services, they are even less likely to seek treatment for what are frequently seen as "adult" diseases (World Health Organization, 1993).

An additional reproductive rights issue concerns the fact that commercial sex workers, particularly women, are often stigmatized for "causing" HIV/AIDS, even being identified as "reservoirs of infection" or as "vectors of transmission" to their male partners and their unborn children (World Health Organization, 1994b). Some countries have instituted mandatory testing schemes for women in high-risk groups, often without

the women's informed consent or any type of counselling procedure.

5. *Associated rights*

It is often not realized that reproductive rights are linked to other areas of life and do not exist in a vacuum. Additional rights are implicated and can have as much effect on reproductive freedom as the inaccessibility of contraception or the lack of resources to pay for it. Perhaps the primary group of these related or coordinated rights comprises those associated with the status of men and women within both the family and society at large.

Several examples are illustrative of the interactions in this area. One such example concerns the right to education. Those who have little or no education generally lack adequate knowledge of the basic facts of health and of the factors that affect health. At a disadvantage in being unable to read about health matters, they are less aware of the existence of health-care services and how to make use of them and less likely to assert their needs or rights with respect to such health-care services. In addition, modern sorts of health-care procedures, such as oral rehydration therapy, vaccination and nutrition programmes, may seem alien to them. Such a situation inevitably affects their ability to obtain family planning services in order to decide on the number and spacing of their children, as well as other health services for themselves and their children. Education also gives people a greater sense of self-esteem and confidence in seeking health care.

In terms more specific to reproductive health, men and women have a right to appropriate education on sex and family matters. Such education allows them to understand how the reproductive system operates and how to prevent unwanted pregnancies through the use of contraception and hence obviate the need for abortions. It also allows them to avoid reproductive tract infections and sexually transmitted diseases which could render them infertile or liable to complications in pregnancies they do want to have, as well as harm their health in other ways. Moreover, they have a right to be treated with respect if they seek reproductive health services.

Another example of an associated right is that of equal status of men and women within marriage. In many countries the sexes are not treated equally in marriage and family relations. Women are often considered valuable only for the purpose of bearing children, preferably male children, for the dowry that they may bring with them, or for the sexual satisfaction that they give their spouses. They do not have an equal right with men to make many decisions, including those relating to employment, property and custody of children, and are forced to seek the permission of spouses in order to undertake certain activities. They may also be subjected to the practices of child marriage or early arranged marriages.

The relatively low status of women within the family in many societies often impairs the rights of women to reproductive health care since it makes their wishes subordinate to the desires of their husbands or other male relatives. Such low status is reflected, for example, in the existence of spousal consent requirements for the use of reproductive health services, particularly family planning services. In some countries, these requirements are mandated legally, while elsewhere they are dictated by tradition and custom. Married women may not be able to obtain contraceptives and may therefore continue to produce children even at the risk of their own health (Cook and Maine, 1987).

D. IMPLEMENTATION

Many obstacles exist to the achievement of the goals of reproductive rights and reproductive health. One major impediment is financial. The Programme of Action of the International Conference on Population and Development calls, for example, for "substantially increased investments", amounting to some $17 billion by the year 2000 (United Nations, 1995, chap. I, resolution 1, annex, paras. 13.15 and 13.20). One third of this sum is to be provided by developed countries and two thirds by developing countries. Although developed countries in recent years have significantly increased their funding of population programmes, there is no assurance that these countries will achieve the desired goal. In some, domestic political factors may in fact lead to decreases in the amount of aid for foreign development that is targeted at reproductive health issues. Similarly, many developing countries are facing difficulties in increasing funding in this area. Faced with problems related to structural adjustment as required by international donors and the burden of foreign debt, a number of countries are in economic crisis and, indeed, are cutting back on social programmes of relevance to reproductive health (Boland, 1995b).

Other obstacles are more political and social in nature. Because of the sensitive and controversial character of the issues involved—in particular, sexuality, contraception, the empowerment of women and family relations—there is resistance to the expansion of reproductive rights. Conservative groups in many countries are opposed to change in policies in these areas. Those holding economic power are, in some cases, also objecting since adoption of a reproductive health strategy for development may mean the reallocation of resources.

In addition, although the Programme of Action of the International Conference on Population and Development constitutes an international statement of stature, endorsed by almost every Government throughout the world, it is not an international treaty that has formal legal validity. Thus, it is not binding on any of the Governments that have endorsed it and does not obligate them to adopt any specific measures. Moreover, it has no enforcement mechanism. Its strength rests on its moral weight and the willingness of Governments to abide by their commitments to its provisions.

Many of the concepts of the Programme of Action of the International Conference on Population and Development rest on rights recognized in international treaties that are binding on the Governments that have ratified them, in particular the Political and Economic Covenants and the Women's Convention. Not all of the Governments that endorsed the Programme of Action of the International Conference on Population and Development have ratified these treaties, and even those that have ratified them have, in some cases, expressed official reservations to excuse themselves from abiding by certain provisions. A number of the Governments that have ratified the Women's Convention, for example, have expressed reservations regarding it, in some cases to the extent of stripping the Convention of much of its substance. Other Governments, while ratifying these treaties, have not incorporated their provisions into domestic law. Without such incorporation, it is difficult or impossible for persons in the countries concerned to have the certainty that treaty provisions will be enforced.

Another major problem is conceptual in nature. In many countries, human and reproductive rights, as expressed in international documents, are not familiar to the general public and little information is disseminated on such rights. In addition, human and reproductive rights may seem abstract in their formulation or even foreign to local experiences, attitudes and traditions. The less well educated are especially vulnerable with respect to being unfamiliar with the meaning of such rights. Also, as was noted earlier, women are, more than men, subject to restrictions on their personal status that prevent them from obtaining information on their rights. Thus, many women are not aware that they have reproductive rights; without such awareness they are unlikely to exercise those rights.

Action to achieve reproductive rights and reproductive health is restricted by these obstacles. However, one strategy for overcoming such obstacles is to try to strengthen and to make greater use of international monitoring mechanisms. Both the Political Covenant and the Women's Convention have monitoring bodies to which countries are required to make reports and which are authorized to issue recommendations on how treaty provisions should be interpreted and applied. These bodies can be supplied with accurate information on the close connection of human rights and reproductive rights and, in some cases, on specific abuses of human rights. They can also be encouraged to make recommendations on the applicability of human rights to reproductive health issues (Sen, Germain and Chen, 1994).

Another strategy is to increase the provision of information and education on reproductive rights and reproductive health. Efforts can be increased to reach the millions of persons throughout the world who have little knowledge or understanding of reproductive health. These efforts can include furnishing basic facts on health and the reproductive system, as well as information on how reproductive health is closely connected to such matters as the age at marriage, education, the status of women and harmful practices such as female genital mutilation. Publicity can also be given to the existence at the international level of documents ratified by Governments that support rights in these matters—particularly the right to decide freely and responsibly the number and spacing of children. Moreover, to be effective, this information should be provided to medical personnel, religious leaders, government officials and non-governmental organizations.

It is of critical importance to present the concept of reproductive rights in ways that are appropriate at the local level. One approach is to point to national laws that support reproductive rights, such as constitutions, population policies and health laws of various countries. Another is to draw on local social movements and traditions that support reproductive rights. A third

approach is to relate "rights" language to actual needs at the local level—needs for basic health services, family planning and education, for example. If the concepts of reproductive rights and reproductive health are to be implemented at the local level, they need to be integrated into existing societal structures, and thus become part of the complex fabric of society.

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VIII. POPULATION INFORMATION, EDUCATION AND COMMUNICATION*

Originally used in the field of agricultural extension, information, education and communication programme interventions began to expand rapidly in the 1960s as components of family planning programmes and since then have been regarded as essential ingredients in promoting awareness and understanding of population issues. Over the years, the role of information, education and communication has expanded in many country programmes to cover broader development concerns such as health, environment, gender, sexually transmitted diseases, human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS). Conceptually, the term "information, education and communication" has come to be accepted as referring to the combined use of all three processes in a coordinated, complementary and strategic fashion, in efforts to create public awareness and advocate for action on population and development issues (Cohen, 1993; Cohen and Javed, 1995). From a programmatic perspective, the term "information, education and communication programme interventions" is usually conceived as denoting an integral part of a country development programme, which is directed to achieving measurable behaviour and attitude changes of specific audiences, based on a study of their needs and perceptions (Cohen, 1993).

In the 1990s, the promotion of reproductive rights and reproductive health, including family planning and sexual health, has become the challenge for population programmes throughout the world. Governments first acknowledged the basic human right of parents to determine freely and responsibly the number and spacing of their children at the International Conference on Human Rights, held at Tehran in 1968 (United Nations, 1968, chap. II, para. 16). The Programme of Action of the International Conference on Population and Development indicated that reproductive rights embrace certain human rights that are already recognized in national laws, international human rights documents and other consensus documents, and included as one of its principles that all couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so (United Nations, 1995a). This has been reaffirmed in subsequent international meetings and expanded to include the rights of individuals to make free and informed choices regarding their own sexual and reproductive health. This principle was strongly reinforced in the Platform for Action (United Nations, 1996, chap. I, resolution 1, annex II) adopted by the Fourth World Conference on Women. The Programme of Action of the International Conference on Population and Development (para. 7.2) defined reproductive health as a state of complete physical, mental and social well-being in all matters relating to the reproductive system and to its functions and processes; it implies, therefore, that people have the capability to reproduce and the freedom to decide if, when and how often to do so.

The design, adoption and implementation of particular strategies required in the implementation of the Programme of Action of the International Conference on Population and Development require political support and advocacy, understood here as a full commitment to its principles, goals and objectives. Effective advocacy is essential in creating awareness of reproductive rights and reproductive health. Such advocacy can be facilitated by the use of information, education and communication strategies. The importance of information, education and communication in the area of reproductive rights and reproductive health derives from the recognition that they are important instruments for achieving individual and social development. In this respect, they have been recognized as significant mechanisms in stimulating and obtaining attitudinal and behavioural changes. In the area of human reproduction and health, various strategies have been used in attempts to develop positive attitudes and encourage responsible and healthy behaviour; to help increase community participation in

*The present chapter is based on contributions of the United Nations Population Fund (UNFPA), the United Nations Children's Fund (UNICEF), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Health Organization (WHO).

population activities; and to facilitate acceptance of population programmes in diverse cultural settings.

A. Aims of information, education and communication programmes

If the quality of reproductive health and family planning programmes is to be improved, an integrated approach will be required and information, education and communication activities have a major role to play. The involvement of appropriate non-governmental organizations, especially women's organizations, is vital to the strengthening of these policies and programmes. This can be increasingly facilitated as the linkages between information, education and communication activities and service delivery become more evident and are accepted and strengthened.

A primary aim of information, education and communication programmes and strategies should be to motivate policy makers, programme managers, service providers and communities to translate into action the concept of reproductive rights and reproductive health, including family planning. This will require the strengthening of national capacities to undertake appropriate information, education and communication and advocacy activities. It will also require that information, education and communication messages be effective and that service-delivery systems respond to the increased demand to whose generation such messages contribute.

Effective delivery of reproductive health and family planning services depends, in part, upon the development of comprehensive, research-based, country-specific information, education and communication strategies that promote choice in the area of reproductive health and family planning. As part of the follow-up to the International Conference on Population and Development, many organizations of the United Nations system have redesigned their work programmes in this area. The World Health Assembly, for example, has designated reproductive health as a main priority for the World Health Organization (WHO), and as such it is promoting an integrated approach to reproductive health, within which information, education and communication efforts will focus on improving the access to and the quality and utilization of services, on being more responsive to the needs of individuals and families, on being more cost-efficient, on meeting the needs of groups not adequately reached by current coverage, and on promoting actions directed to facilitating free and informed decision-making on the part of the users of services. The United Nations Population Fund (UNFPA) has strengthened its information, education and communication actions in support of reproductive health and family planning activities, and its Programme Priorities and Future Directions (United Nations Population Fund, 1995a) indicate that the general objectives of such strategies will be:

(*a*) To draw the attention of policy makers to the need for community-specific reproductive health and family planning services;

(*b*) To improve knowledge of programme managers and service providers about clients' perceptions and needs and their satisfaction with respect to reproductive health and family planning services;

(*c*) To improve the quality of reproductive health and family planning care by enhancing service providers' interpersonal communication skills;

(*d*) To motivate men to share reproductive decision-making with their spouse, support their partner's reproductive choices and adopt responsible sexual behaviour;

(*e*) To improve adolescent reproductive health through the development of responsible attitudes towards sexuality and parenthood and the encouragement of gender-fair attitudes;

(*f*) To help specific audiences understand the benefits of using family planning methods and reproductive health services.

B. Activities

There is a large variety of information, education and communication programmes that combine strategies of mass, group and one-to-one communication approaches, and that use different channels, from interpersonal and peer support to formal schools curricula, from traditional and folk media to mass entertainment and news media, and production and dissemination of specific materials.

Information, education and communication approaches based on audience research are being used as frameworks for action in an increasing number of countries. The spectrum of information, education and communica-

tion activities includes a large array of operations that covers awareness-raising campaigns, art exhibitions, and painting and poster competitions; design, development and distribution of information, education and communication and training materials; printing and distribution of booklets, brochures and comic books with family planning, sexual health and HIV/AIDS prevention messages; radio and television programmes, particularly soap operas that contain family planning and HIV/AIDS themes; dramas and puppet shows; seminars and workshops; telephone hotlines; and preventive counselling, including the distribution of condoms. When planned in a coordinated and strategic manner, these activities can make a significant contribution to the impact of population programmes.

The analysis of the more successful reproductive health and family planning programmes throughout the world indicates that such achievements take place when there is a firm and active commitment to information, education and communication activities and when such activities are carefully planned strategies emanating from various levels of Government. In some examples, outstanding fieldworkers, managers and clients who have assumed the role of motivators and peer counsellors have been distinguished as the subject of government recognition. In many cases, community members have been recruited as volunteers and community participation has been encouraged (United Nations Population Fund, 1995b).

Among the topics covered by information, education and communication programmes in relation to reproductive rights and reproductive health are the following:

(*a*) Means to improve the knowledge and understanding of reproductive health and family planning issues;

(*b*) Mechanisms to achieve attitudinal changes more favourable to responsible parenthood;

(*c*) Child-spacing, appropriate perinatal practices, clean and safe delivery, and prevention of sexually transmitted diseases, including HIV/AIDS;

(*d*) Procedures for disseminating knowledge of the use modern family planning methods;

(*e*) Factors affecting the acceptance of reproductive health and family planning programmes;

(*f*) Designs for disseminating information on accessibility to reproductive health and family planning services;

(*g*) Measures to strengthen local and national capacity in information, education and communication activities, particularly through training and research;

(*h*) Gender equality and equity in relation to reproductive rights and reproductive health.

One important component of a comprehensive information, education and communication strategy involves the school system. In order to increase acceptance of reproductive health and family planning, population education programmes in public school systems attempt to instil in the student an appreciation of demographic changes and their consequences, and the importance of responsible and healthy reproductive behaviour. Population education, which can be found in the school systems of more than 90 countries, has made concrete contributions to the improvement of the quality of education through the development of new, relevant curricula and the introduction of participatory teaching methods and innovative teaching materials. Teachers training in population education has been an integrated component of all population education programmes developed and implemented at the country level (United Nations Educational, Scientific and Cultural Organization, 1994a). In light of the discussions held at the International Conference on Population and Development, current efforts in population education are directed to improving its effectiveness and ensuring that curricula encompass emerging concerns and priority issues, such as gender equality and equity, male responsibility and other key reproductive health concerns. Country-level activities include the review and/or revision of population education materials to ensure more adequate attention to those issues.

Activities carried out in many countries have shown that young people view their peers as the preferred source of information on many issues, and particularly on topics related to sexual and reproductive health. An analysis of many cases has demonstrated that training young people to play a counselling role for other peers in these matters is not only feasible but also very effective. Peer approaches include peer communication, which involves broad youth dissemination of information and materials; peer education, which involves

training people to carry out informal or organized education activities with individuals or small groups; and peer counselling, which involves training people to carry out one-to-one counselling of their peers.

In addition to the number of activities mentioned in chapter VI of this publication in regard to sexually transmitted diseases, there has been an integration of HIV/AIDS prevention modules into school and out-of-school education programmes in 66 countries with support from UNFPA. These education programmes, which target youth and adolescents before and as they become sexually active, constitute a key strategy in disease prevention and control. As part of the effort to meet the social and cultural challenges of the time, international agencies are supporting health promotion, social mobilization and education on preventive practices as the best means of combating sexually transmitted diseases, including HIV/AIDs, and drug and alcohol abuse. There are resource packages, including video productions, other audio-visual aids and case studies based on different educational experiments proved effective for various audiences, currently available for use in countries. UNESCO and WHO have prepared educational materials for school health programmes, including teacher's guides (United Nations Educational, Scientific and Cultural Organization and World Health Organization, 1994).

New programme initiatives in Africa include ancillary services, such as marriage guidance, infertility counselling and referrals, education on AIDS prevention, the use of family planning logos and colourful printed leaflets and posters, family planning songs, radio spots and dramas, audio cassettes and other campaign materials. In Western Asia, initiatives include the training of journalists and the mobilization of local media practitioners for educational purposes. In many Latin American countries, services for adolescents include educational programmes to reach teenagers outside the school system, through sports and recreational clubs. Many youth centres worldwide currently provide peer counselling to reach young people engaged in high-risk behaviour (International Planned Parenthood Federation, 1993b).

Radio and television soap operas have captured the interest of large viewing audiences in different regions and among different cultures and have thus become an excellent means of transmitting reproductive health and family planning information, education and communication messages. Other forms of entertainment, such as music and puppets shows, are also being used to convey reproductive health and family planning messages (Johns Hopkins University, 1993) (see box 8).

Creative information, education and communication responses to the challenge of increasing male involvement in family planning have included the use of community forums for men in Bangladesh to encourage open discussions on the topic; the mobilization of male opinion leaders in Egypt and Ghana to endorse the use of family planning; use of taxi drivers to provide information on AIDS prevention as a form of interpersonal communication; a media campaign in Brazil to promote vasectomy; and half-time show inserts in a Zimbabwe soccer match to motivate millions of mostly male television viewers to use family planning (Green and others, 1995).

The prospect of using satellite technology to teach and train over great distances is a promising one. New trends include efforts to teach reproductive health through computer-assisted learning systems and interactive video disk technology; the use of long-distance teaching in reproductive health education; the use of microcomputers to teach biostatistics, to disseminate information and to conduct training activities in population and family planning; and patient simulation cases in obstetrics and gynaecology. A successful experiment in the Caribbean has been able to connect schools and children's hospitals through satellite communication to inform nurses in primary, secondary and tertiary care settings. Video disks on how to perform vasectomy, female sterilization and the management of pelvic infections have been developed in addition to many others that are already available on the use of family planning, the prevention of HIV/AIDS, adequate nutrition and so forth.

C. Issues

Three key issues have been selected for discussion in the present chapter, namely, sociocultural factors affecting access to services and information; inadequate links between information, education and communication, and the delivery of reproductive health and family planning information and services; and lack of adequate indicators for measuring progress in this field.

BOX 8. SOAP OPERAS IN AFRICA

Research studies conducted in India, Kenya, Mexico and the United Republic of Tanzania have shown that serial dramas, usually called "soap operas", in addition to providing a cost-effective form of entertainment, can also convey information and have an important potential for motivating listeners and viewers. One such programme, *Acompáñame* ("Come with me"), was a major television success in Mexico. The following two examples from the United Republic of Tanzania and Côte d'Ivoire illustrate the potential influence of serial dramas.

Twende na Wakati ("Let's go with the times")[a] is a radio soap opera that has been produced using the methodology developed by The Population Communications International (PCI). An independent research project has been carried out by the University of New Mexico and the Population/Family Life Education Programme of the Government of the United Republic of Tanzania. A comparison of the data from two random sample surveys reveals startling changes with regard to *Twende na Wakati* and the issues it addresses. One survey was completed before the two-year soap opera began and the second was taken at the end of the first year. The initial findings indicate that during the period covered by the research (July 1993-June 1994), 46 per cent of the 3,000 people surveyed in the areas receiving the programme had listened to the production, with 25 per cent listening every week. Asked about the topics they had learned about by listening to *Twende na Wakati*, 78 per cent of the listeners mentioned family planning; 71 per cent, AIDS prevention; and 64 per cent, means of improving communication with their spouses. Other findings indicate that 72 per cent of listeners decided to change their personal behaviour to protect themselves from AIDS through a combination of condom use and a reduction in the number of sexual partners. Twenty-one per cent said that the soap opera had motivated them to begin using family planning methods. Seventy-nine clinics throughout the country administered a new-patient questionnaire to keep track of the different reasons people gave for seeking family planning services. In the areas where *Twende na Wakati* was being broadcast, 26 per cent of the new patients surveyed cited the soap opera by name as a reason for seeking family planning services; 8 per cent mentioned an information programme, *Afya ya Jamii*; and another 4 per cent indicated a second radio serial programme, *Zinduka*, which is a collaborative effort between Radio Tanzania and the Johns Hopkins University. Another 6 per cent cited other radio programmes.

Sida dans la cité ("AIDS in the city")[b] is a recent television soap opera produced by the Population Services International (PSI) in collaboration with the National AIDS Committee of Côte d'Ivoire. It is the first French soap opera of its kind and it won first prize for best fiction film in the television/video category of the 1995 Pan African Film and Television Festival of Ouagadougou (FESPACO). Weekly surveys in Abidjan indicate that after the first five weeks of the programme, the AIDS story had already struck a deep chord in this Western African country of 14 million inhabitants, 640,000 of whom are estimated to be carriers of AIDS. It has been found that on any given Tuesday night (the night it is broadcast) over 51 per cent of the population watch television; of these viewers, 75 per cent are watching *Sida dans la cité*. Each episode of the series is carefully crafted to introduce one major theme per week and to raise provocative discussions about HIV/AIDS. One episode, for example, focused on testing for HIV, and included a condom-use demonstration by an Ivorian physician. As in most soap operas, each episode ends on a dramatic note, leaving the viewer wanting more. Preliminary research has determined that the main complaint of the viewers is that each 15-minutes episode is too short.

[a]Based on information provided by PCI.
[b]Based on information provided by PSI.

1. Sociocultural factors affecting access to reproductive health services and information

It is sometimes assumed that attitudinal change leading in turn to behavioural modifications can be brought about simply through effective information, education and communication activities. However, this view fails to recognize the importance of external and predisposing factors that facilitate or inhibit such modifications. Accordingly, it is as important to address social, cultural and political conditions and maximize community support as to communicate clear, appropriate and timely information.

Notwithstanding the progress made, particularly in recent years, roughly 350 million couples throughout the world still lack access to a full range of modern reproductive health and family planning information and services. Current estimates are that 120 million women who are not currently using a modern family planning method would do so if one were available, affordable and acceptable to them and their spouses. This unmet need for family planning services represents a major gap in the quest for reproductive rights (United Nations Population Fund, 1995c).

In spite of improved levels of literacy and systems of communication in many countries, a number of traditional myths, practices and taboos pertaining to human sexuality, fertility and reproduction are still adhered to in both rural and urban areas, by both men and women, and even by some of the educated segments of the population. For example, in many societies, men consider family planning to be a woman's concern. Presumably, this is largely because of lack of communication between spouses (Sujatha and Murthy, 1993).

Maternal mortality is one of the leading causes of death among women of reproductive age in many developing countries. Pregnancies that are too early, too late, too frequent or too numerous are associated with high levels of child and maternal morbidity and mortality. Morbidity and mortality risks are exacerbated if women are poor, malnourished, uneducated or beyond the reach of proper health care. Overcoming the sociocultural factors that impede access to reproductive health services and information for women involves moving beyond the traditional "campaign" approach which targets particular groups with specific messages on different components of reproductive health. A more integrated and comprehensive approach is needed in order to mobilize the entire community and to create a community environment that will be more supportive of women's health needs (World Health Organization, forthcoming).

An increasing number of adolescents are sexually active but without access to sexual health information, education and services. At least half of all HIV infections worldwide to date have occurred in young persons aged 15-24. More than 1 billion people—nearly one fifth of the world population—are in this age group. For the year 2000, WHO projects a cumulative total of from 30 million to 40 million HIV infections in men, women and children, of which more than 90 per cent will be in the developing countries (World Health Organization, 1993). Of the hundreds of millions of adolescents requiring reproductive health services, only a few have access to good-quality information and advice, contraceptives or health care. The emergence of HIV/AIDS has pushed the educational system at all levels into more open and frank discussions of human reproduction, sexuality and personal behaviour in schools, communities, the educational system itself and the society at large. These situations have encouraged schools to exhibit a greater cultural sensitivity to and intimacy with the community (United Nations Educational, Scientific and Cultural Organization, 1994).

Even in the present-day modern world, myths and ignorance about reproduction are not uncommon. In countries where the use of rhythm methods is encouraged, it has been found that few adolescents can correctly identify the part of the monthly cycle when a woman is most likely to get pregnant (International Planned Parenthood Federation, 1993a).

In many societies, providing education on sexuality and reproductive health is a delicate subject—and many reproductive health and family planning programmes are restricted to married couples on the assumption that access to contraception for unmarried individuals will encourage sexual activity and promiscuity. Sexually transmitted diseases, high rates of infant and maternal mortality, unwanted pregnancies, high rates of

unsafe abortion and low birth weight babies are among the problems facing young people engaging in sexual relations prematurely because of their basic ignorance of human sexuality and reproductive health.

2. Links between information, education and communication, and service delivery

Information, education and communication activities may help overcome barriers to full access to services in the area of reproductive health and family planning. Such barriers include, among others, waiting time, distance and cost of travel to places where services are available, cost of services and other economic factors, and the problems related to attitudes and behaviour of health workers, responsiveness to clients' needs and understanding of the information given by health personnel. It has been widely recognized that satisfied customers can help bring others in for services.

As indicated in more detail in chapter III of this publication, analyses of demographic and health surveys conducted throughout the world have demonstrated major differences between reproductive intentions and reproductive behaviour, a phenomenon termed the knowledge-attitude-practice gap. Part of the reason for the existence of this gap is the lack of adequate information to combat rumours, myths and misinformation, and the lack of access to high-quality services (Sikes, 1992).

The gap between awareness and practice may also be attributed to the fact that reproductive health programme managers and service providers often have not been involved in the planning of information, education and communication activities, and that information, education and communication specialists have not been part of the service-delivery planning team. As a result, information, education and communication operations have not always achieved their full potential in creating demand for services. Strengthening the links between information, education and communication and reproductive health activities will make them mutually supportive, and thus enable national programmes to better satisfy unmet needs for high-quality reproductive health services. This strategy has important implications for programme policies in terms of strengthening information, education and communication operations, training service-delivery personnel (including educators and communicators) and coordinating programme activities (Dodd and others, 1993).

3. Indicators for measuring the impact of information, education and communication

In many countries where information, education and communication operations have been presumed to be instrumental in promoting reproductive health and family planning, the adequate identification of inputs and the assessment of impacts attributable to such operations have been deficient. The most widely used indicators for measuring the success of such programmes and strategies refer to the number of materials distributed, campaigns conducted, films shown, size of audiences and, sometimes, amount of knowledge gained. Indicators that measure social support and formation of attitudes, behaviour and practices are often not included.

An assessment of the impact of 15 projects in Africa, Asia and Latin America and the Caribbean showed that it was difficult to measure the impact of such projects on the utilization of family planning services because basic data and adequate indicators were lacking (United Nations Population Fund, 1994). This weakness has been attributed to inadequate attention's being given to audience research, needs analysis and lack of modalities for effective integration of information, education and communication activities in the reproductive health and family planning system. The study also observed a general inability on the part of family planning institutions to analyse their capacity to implement information, education and communication programmes or projects. Thus, the targets for impact were sometimes too ambitious and beyond the capacity for implementation. The study also showed that most information, education and communication projects that were linked to family planning activities exhibited poor coordination with other population projects or to national information, education and communication strategies in the field of population. Concerning the training of health personnel, the same study showed that training was often concentrated at the central level and the time devoted to specific information, education and communication activities was too short.

At the same time, a critical factor was the underutilization of available research findings and the dissemination of information to guide policy makers, programme

managers and service providers in the delivery of high-quality reproductive health care. Often, this is due to the absence of modern management information systems, libraries and other resources that could facilitate the dissemination and utilization of such information.

D. Strategies and policies

1. Links between policies and information, education and communication activities

Population policies and legislation have a major role to play in the creation of a supportive environment for reproductive health and family planning. Policies and laws provide a solid support to the adoption of other actions that are important, particularly for young people's health, such as establishment of a minimum age at marriage; access to reproductive health and family planning services and information; and availability of confidential counselling. More specific measures include those that encourage pregnant adolescents to remain in school; and those directed to a safe school environment, particularly for adolescent women, by regulating the conduct of teachers and school officials, and to the introduction of sensitive issues into school curricula.

School authorities in some countries have initiated stricter policies on pregnancy among students while at school. For example, the Namibian Ministry of Education is finalizing a system-wide policy that defines behaviours that are not permissible in school and provides sanctions (such as a requirement of community service, counselling and so on) for those violating the guidelines. In addition, the guidelines urge greater involvement of parents in the discussion of sexuality issues.

Cultural diversity prevents a universal, uniform approach to education on reproductive health. There is a wide variation in policy responses to such questions as what types of reproductive health education courses, if any, should be included in the school curriculum; whether they should be obligatory or elective; whether there should be separate courses or an integration of fertility-related material into existing courses; what the approach should be to the terminology appropriate in each culture; and whether boys and girls should be separated for instruction. There is increasing recognition that programmes in school settings cannot reach the large number of adolescents outside the educational system. However, laws regarding the public dissemination of reproductive health and family planning information are often restrictive. Overall, law and policy have not kept pace with the health-care needs of adolescents. They have in many cases constrained the provision of reproductive health care.

2. Population education

The 1990 World Conference on Education for All (Inter-Agency Commission (United Nations Development Programme (UNDP), UNESCO, UNICEF, World Bank) for the World Conference on Education for All, 1990) and the International Conference on Population and Development made access to education, especially for girls, a priority for the 1990s. The Programme of Action of the International Conference on Population and Development recognizes basic education as an urgent priority and draws attention to its links to population and social and economic development. It further states that the value of girl children both to their families and to society must be expanded beyond their role as potential childbearers and reinforced through educational policies that encourage their participation in the development of their societies.

Population education programmes usually cover topics that range from population dynamics to pregnancy and family planning, family life, sex education and, more recently, new ways of looking at gender issues, HIV/AIDS and sexually transmitted diseases. The challenge to educators is to assign priorities appropriately (in the context of crowded curricula) and to develop culturally appropriate ways of addressing potentially sensitive but important questions. Evaluation studies have revealed that sex and HIV/AIDS education programmes may reduce unsafe practices among sexually active adolescents and reduce early pregnancies. Success depends upon the quality, content and length of the curriculum (World Health Organization, 1994c).

Approaches to population education vary considerably; there are differences between regions and between countries within regions. For example, a number of formal education projects in Latin America include topics on both sexuality and gender issues. Many programmes in Asia introduce gender issues but give less importance to other aspects of human sexuality. Regional analyses are under way with a view to strength-

ening key approaches. Without relevant and effective programmes on sexuality and gender education, and without access to family planning and other reproductive health services, young people will remain at risk and will be unprepared as parents to assist their children in coping with the complexities of human life.

The promotion and implementation of an effective population education programme require comprehensive and sustained advocacy efforts at the global, regional and national levels to obtain the full commitment and support of Governments. At the country level, this implies that population education programmes would encourage more public participation in educational policy-making and curriculum development and devote significant attention to improving curricula and materials and teacher competencies. Community involvement in countries as diverse as Bolivia, El Salvador, Ghana, Morocco, Paraguay, the Philippines and Senegal has resulted in strong national population education programmes.

3. Links between information, education and communication activities and reproductive health and family planning programmes

The importance of information, education and communication in support of reproductive health and family planning programmes is clear, as is the need for the two to be directly linked. There is a need to look beyond sectoral concerns and to respond to the complex issues that require coordinated efforts. Strengthening the links between information, education and communication programme interventions and reproductive health programmes and services will make them mutually supportive and thus enable national programmes to better satisfy unmet demands through the delivery of high-quality reproductive health and family planning services. Strong policy support will be needed in order for this to happen (Dodd and others, 1993).

In some countries, the management of health and other development programmes has been decentralized to give greater autonomy to local governments in implementing projects and activities. In the Philippines, a local government code has been enacted, devolving to provincial governments the provision of health and social services, including population and family planning. The creation of inter-agency task forces at various levels, which bring together both service-delivery providers and information, education and communication practitioners, has improved the management of limited resources available for information, education and communication programmes. This has also reduced overlapping and duplication of activities and maximized the use of available resources for effective programme supervision and implementation.

With regard to the prevention and control of sexually transmitted diseases and HIV/AIDS, the Programme of Action of the International Conference on Population and Development calls on all Governments to undertake a number of actions, including programmes that give priority to information, education and communication activities in order to raise awareness and promote behavioural change. In addition, Governments are advised to develop guidelines and counselling services on sexually transmitted diseases and HIV/AIDS within primary health care services.

In addition to contributing to a generation of or increase in the demand for reproductive health and family planning services, information, education and communication programme strategies should also reinforce the elimination of all forms of discrimination against the girl child, the elimination of traditional harmful practices against girls and women, and an increase in male responsibility in the area of reproductive health and family planning.

4. Some innovative approaches

Innovative social marketing programmes have increased rapidly over the past years in response to increased demand for access to reproductive health and family planning services, particularly in hard-to-reach areas. This strategy presents an excellent opportunity for increased involvement of the private sector and non-governmental organizations in population programmes, including the appropriate use of reproductive health services. Social marketing is usually employed to generate demand for a product; to meet product supply and distribution requirements (including forecasting, procurement, quality and inventory control, and warehousing); and to provide support for product utilization through effective management and training. Social marketing has also been effective in attracting consumers with low prices, promotion and easy access. For example, it has been successfully utilized to promote the use of condoms as a family planning method, as well as for protection against sexually transmitted diseases, including HIV/AIDS.

Reproductive health and family planning campaigns in some countries also include the use of mobile teams, mobile audio-visual vans and mobile clinics, to visit remote communities and increase access to reproductive health information, facilities and services (United Nations Educational, Scientific and Cultural Organization, 1992). For illiterate audiences, a visual culture has been identified that has proved receptive to reproductive health and family planning messages. In many parts of Africa, Asia and Latin America and the Caribbean, comics magazines, huge posters and billboards and cartoons have complemented efforts to disseminate information on reproductive health and family planning. A successful example of this approach is *Los supermachos*, a widely distributed Mexican comic-strip magazine which, some years ago, devoted an entire issue to promoting vasectomy.

The telephone "hotline" is another successful approach which has attracted particularly young people. This approach plays an important role in providing anonymous yet personalized information and feedback to a large number of people who may be too anxious, shy, uncertain or uninformed to seek help in any other way. It is also an effective way for people to report sexual and gender violence anonymously.

Newly acquired modified behaviours can be reinforced by key communicators in the community, such as policy makers, innovators, community representatives, spouses, parents and peers. Others may include folk healers, indigenous midwives and pharmacists who may be consulted, in conjunction with the key communicators before the potential clients decide to visit health-care services. Complementarity between the formal and informal systems is very important.

Clients' frame of reference is becoming used increasingly as the basis of another important approach to establishing effective rapport and communication. In order to effectively translate reproductive health and family planning notions into new patterns of individual behaviour, communication between clients and service providers in health facilities is critical. Actions in this particular area include the improvement of physical facilities so as to allow clients to sit while waiting for services; adoption of procedures to create a positive image of health personnel as a body of practitioners eager to assist clients; and use of language and tone of voice to reinforce the clients' feeling that health personnel are not treating them in a condescending manner or as inferiors and are available to discuss clients' beliefs and desires about family size and reproductive health concerns. Health personnel should be ready to discuss with clients the availability of different options, to demonstrate appropriate interventions or contraceptive methods, and to elicit and respond to questions, doubts and misconceptions (see box 9).

E. PRIORITY AREAS

The Programme of Action of the International Conference on Population and Development stipulates the following: "A coordinated strategic approach to information, education and communication should be adopted in order to maximize the impact of various information, education and communication activities, both modern and traditional, which may be undertaken on several fronts by various actors and with diverse audiences. It is especially important that information, education and communication strategies be linked to, and complement, national population and development policies and strategies and a full range of services in reproductive health, including family planning and sexual health, in order to enhance the use of those services and improve the quality of counselling and care" (United Nations, 1995a, chap. I, resolution 1, annex, para. 11.19).

The Programme of Action of the International Conference on Population and Development provides a challenge for population and development programmes. In addition to making the national policy formulation process more responsive to a wide range of new objectives and actions, they have to accord priority to the timely achievement of specified goals pertaining to the reduction of infant, child and maternal mortality, empowerment of women, universal accessibility of reproductive health information and services, and provision of basic education. These goals can be achieved only through the formulation and implementation of comprehensive policies and programmes. Therefore, there is a need to strengthen and broaden the base of policy support for reproductive health and family planning programmes.

In order to achieve the goals and objectives of the Programme of Action of the International Conference on Population and Development, effective advocacy is needed, particularly in the following priority areas: information and research base of programmes; adolescents; gender equality and equity; increased participation

BOX 9. REPRODUCTIVE HEALTH SERVICES IN THE PRIVATE SECTOR: THE CASE OF PROFAMILIA IN COLOMBIA[a]

The Colombian Association for the Well-being of the Family (PROFAMILIA) is a private not-for-profit organization that is affiliated to the International Planned Parenthood Federation. It was established in 1965 to provide a broad range of reproductive health services. The nationwide programme includes 40 clinics for women, 7 clinics for men, 13 youth centres and an extensive contraceptive distribution network through community-based outlets. Activities related to sexually transmitted diseases were part of the programme since the beginning and those related to HIV/AIDS started in 1988; about 15 per cent of the total budget is allocated to those activities. PROFAMILIA was the recipient of the United Nations Population Award in 1988.

PROFAMILIA was one of the first programmes in Latin America that included information, education and communication components as part of reproductive health and family planning services. Initially, the programme consisted of only three clinics in Bogota, Medellín and Barranquilla. The first few customers came out of curiosity or because a fieldworker or a neighbour had told them about the clinic. Within a few years, PROFAMILIA clinics were operational in every capital of every province offering direct services and information, education and communication materials.

The major focus in creating awareness in an environment that was hostile to this kind of activity was the utilization of fieldworkers called "motivators" and the extensive use of radio broadcasting. Motivators were trained in person-to-person communication techniques and were supported by appropriate materials including films, slides, posters and printed materials. Motivators worked part-time in the field and part-time in clinics, giving talks on anatomy and physiology, responsible parenthood, contraceptive methods and the need for family planning. They reinforced their talks with flip charts, slides and 16 millimetre (mm) films. Outside the clinics, motivators spent part of each day making home visits and contacts in the community to organize day or night group meetings where films could be shown and a lecture given. Motivators are now called "instructors" and are directly involved in the national community-based distribution programme. These open distribution centres, established in the rural coffee-growing areas in 1971, were expanded to cover the entire country.

This approach was backed by radio support, which was a key element in the steady growth of the programme. From 1969 to 1972, PROFAMILIA launched a three-month radio campaign nationwide using radio spots with such messages as "What is family planning?", "Why should I use family planning?" and "Where could I get family planning services?" The positive and negative reactions to such radio spots were analysed in detail and led PROFAMILIA to redefine and adjust its communication campaigns. As a result, PROFAMILIA moved to more direct messages mentioning intrauterine devices (IUDs), pills, foams, jellies, condoms, vasectomies and tubal ligations, with little or no negative reaction. In recent years television commercials, newspaper and magazine advertisements and billboard campaigns have been widely used. Messages such as "Prepared men do not die of AIDS" have been disseminated with wide acceptance.

PROFAMILIA made pioneering use of social marketing strategies complementary to the above approaches. In 1994, more than 6 million condoms were sold through the community marketing programme, which supplies contraceptives to community-based distribution posts and drugstores. PROFAMILIA community marketing instructors resupply outlets with contraceptives and educational materials at least once every three months, at which time they also conduct community outreach activities.

[a]Based on information provided by the Information, Education and Communication Division of PROFAMILIA.

of clients in all aspects of programmes; and training of programme personnel.

Advocacy in support of broader educational goals will include the use of non-formal channels and all available media, such as the workplace, parent education activities and agricultural extension to reach out-of-school young people and adults. All these efforts will require the development of carefully planned research-based information, education and communication strategies and the use of various types of audio-visual materials, featuring a variety of messages and channels that cater to the specific needs of audiences.

1. Data requirements, indicators and future research

As mentioned above, the lack of robust indicators that could provide evidence of the amount of success achieved in applying information, education and communication programme interventions is further handicapped by the lack of valid and reliable data. Consequently, the development of appropriate mechanisms for collecting data and of instruments for assessing and evaluating programme effects should receive high priority. Country programmes are encouraged to develop or strengthen their information systems for the management of information, education and communication programmes and should receive assistance in this area.

There is a need for such applied research on potentially sensitive issues in order to determine audiences' perceptions as could lead to appropriate ways of communicating about these issues effectively in each cultural context. Detailed studies on the level of knowledge acquired by different audiences and the extent to which the issues presented have been adequately understood by specific target groups could provide a better understanding of which strategies are the most effective and appropriate. Rapid assessment techniques have a great deal to offer to programme managers needing immediate, usable feedback for improving communication with target audiences. In addition, the use of the principle and techniques of audience segmentation is vital for effective information, education and communication programme interventions, especially when addressing the area of adolescence where their past application has been limited.

Global-level research will be required to identify the specific information, education and communication programme interventions that will be most cost-effective for supporting reproductive health programmes and for developing the standard protocols and instruments needed to collect the data necessary for planning, managing, monitoring and evaluating information, education and communication programmes in support of reproductive health and family planning programmes. At the country level, this will include social and cultural research for developing information, education and communication materials, and for providing a more solid foundation for the desired impact.

There is a need to assess the factors associated with weaknesses in institutional structures, management approaches, human resource training in reproductive health and family planning, innovative approaches and service delivery. There is also a need for greater access to technical assistance in the area of information, education and communication, including the training of teachers, journalists and other media personnel in the design and development of curricula, programmes and information, education and communication messages with the ultimate goal of building national capacities; such assistance should give particular attention to the development of innovative approaches.

2. Adolescents

The foundations for sexual and reproductive health and gender relations are laid early in life through the interaction of familial, social, economic and cultural factors. Young people, particularly adolescents, have a special need for information on sexual and reproductive health, as well as on other, related issues such as substance abuse and violence. The transition to adulthood, as young people develop their own identity and personality, is a time for experimenting, taking risks, and facing new challenges and first-time decision-making. The complete development of adolescents is most likely to occur within a healthy environment—one offering support and the resources to acquire and use the knowledge and skills needed to make sound choices.

Adolescence is a critical period of development: the body increases in size, shape, stamina and strength; there is a change in the sexual response system and the

body develops the capacity for reproduction; the mind increases its capacity for abstraction, planning, empathy, idealism and creativity; and new social relationships develop, often for the first time, outside the family, with peers of both sexes and with adults other than parents. All of these changes may lead to increased risk-taking. The fact that physical, psychological, social and emotional maturational processes usually proceed at different rates may in turn be responsible for much of the confusion and vulnerability experienced by adolescents. During this time, boys tend to be more aggressive, and both boys and girls may be reluctant to ask for the help they need.

Despite the centrality of sexuality and reproduction to human life, few societies prepare their individuals to cope with these issues. In many societies in rapid social transformation, traditional mechanisms for socializing and educating young people about sexual behaviour are breaking down or have become obsolete. The failure of social institutions to provide the information, services and support that would enable adolescents to protect themselves from harmful experiences is putting them at risk. This failure violates the fundamental principles of the United Nations Convention on the Rights of the Child (General Assembly resolution 44/25, annex). The Convention guarantees, among other things, that children (all human beings under age 18) shall have access to the information, services, protection and support needed for their health, development and security.

Most young people, regardless of age, marital status or income level, are exposed to mass media, classroom education and the influence of family members, peers and the community at large. It is through these three principal channels that adolescents gain the information, education and skills required to advance through the difficult passage to adulthood. The provision of information on sexuality, pregnancy and sexually transmitted diseases, combined with information on local services and counselling availability, is an effective way to assist young people (World Health Organization, 1994a). There is also a need for service providers to be linked to each other so that when a young person comes for help with a problem, its confidentiality may be protected against violation by others. It is important to recognize that adolescents have their own attitudes on health needs and problems which may differ from those of their parents or other adults. Information and communication materials intended for adolescents should be designed in a style that is appropriate to them.

Many of the activities related to the International Year of the Family, which took place in 1994, as well as the discussions held during the preparatory work for the International Conference on Population and Development, acknowledged the contributions made by families to the improvement in the quality of life of individuals. It was recognized that the family provides the natural framework for the emotional, financial and material support that is essential to the growth and development of its members; it plays an important role in the transmission of cultural values and is the first environment where education takes place; it is also the first and primary conduit for human rights education. The Programme of Action of the International Conference on Population and Development declared that the family is the basic unit of society and affirmed that it is entitled to receive comprehensive protection and support. Information, education and communication programmes can increase their effectiveness by giving more attention to strategies involving families.

The mass media have a powerful influence on the attitudes and behaviour of young people. The media are closely followed by them and become an important source of information (and misinformation) about sexual life. This critical influence of the media could be used in a dynamic way to promote the discussion of sexual and reproductive health issues among adolescents. Entertainment is also a new and effective way of reaching young people with information about sexual behaviour, protection from pregnancy and disease, gender equity and equality, and environmental concerns. Songs, dramas, soap operas, variety shows and a large array of folk media can offer new ideas for young people to apply in their own lives. Entertainment can be persuasive in terms of presenting role models—for example, young people facing their first sexual concerns—who are similar to members of the intended audience. Popular singers, actors, sports stars and other attractive celebrities are quickly accepted by their fellow youth and their messages can be taken seriously (Johns Hopkins University, 1993).

Community and alternative media are also an effective means of reaching and involving young people. Community theatre, dance, music and video offer an opportunity to involve young people directly in their design, development and implementation. Youth participating in such activities can help ensure that the messages communicated are appropriate and compelling to their peers. They can also be involved in facilitating the

community dialogue and debate that should be linked to such efforts. Community media and dialogue can be complementary to mass media approaches which may raise important questions for young people, but do not provide the opportunity for asking questions and open discussion.

Young people need more than information to help them make healthy decisions and choices. Even in situations where they know what the healthy choices should be, they may not always make the correct ones because of either lack of skills or peer or social pressures. Schools are among the forums for proving young people with both the knowledge and skills they require to make appropriate choices. The skills that are needed by young people include decision-making, communication, negotiation and conflict resolution. The acquisition of such skills help them navigate safely through adolescence and can provide the basis for their skills as adults. Existing health education efforts can be strengthened by making them more interactive and less didactic. Life skills cannot be properly taught through lectures and books alone; interactive teaching methods that engage both teachers and students are powerful instruments. These methods can be complemented with extracurricular activities, such as school health clubs, which provide the opportunity to discuss key issues outside the classroom setting. Other extracurricular activities can help disseminate information and ideas to the students' families and communities and provide young people with opportunities for community service and participation.

Youth organizations can also play a major role in health promotion for youth both in and out of school and contribute to making young people's immediate environment more supportive. Youth groups can create linkages to the health sector and help make health services more "youth-friendly". Such organizations can also play a role in involving parents and in helping them understand and provide support to their adolescent children.

3. Gender equality and equity

The Programme of Action of the International Conference on Population and Development affirms that the full participation and partnership of both women and men is required in reproductive life. Education and information that promote such aims and encourage responsible sexuality, respect for women, and gender equity and equality are also fundamental to improving the status and role of women in society.

Although both men and women who have unprotected sexual relationships are at great risk of contracting sexually transmitted diseases, including HIV/AIDS, it is important to recognize that women are biologically more susceptible to contracting such diseases. Women are also more vulnerable to pressure to engage in sexual activity. The relatively low social and economic status of women in many societies is also a major factor that increases their vulnerability. Increasing attention is being paid to female genital mutilation, a practice that has affected between 85 million and 114 million women in the world, and whose epidemiological characteristics may have long-term detrimental consequences (World Health Organization, 1994b). Information, education and communication campaigns can play a crucial role in creating awareness about these issues.

Investing in education, particularly in women's education, has been recognized as one of the best strategies for achieving the multiple goals and objectives adopted by major international strategies, particularly because of the multiplying and synergistic impact of education. Studies have shown that increasing the education given to girls and women contributes to their empowerment and to improving family health. Expanding women's knowledge of reproductive health and expanding their choices enables them to better meet their reproductive goals. Following the International Conference on Population and Development, population organizations have increased their advocacy activities in support of girls' education.

Effective advocacy is essential in moving decision makers to adopt a holistic approach to reproductive health; eradicating harmful practices against women and girls, such as female genital mutilation; drawing attention to the health needs of the girl child; eliminating nutrition practices that discriminate against girls; and involving men in reproductive health and family planning programmes. Effective advocacy is also crucial in removing legal, social, cultural, political and economic barriers to women; in enforcing existing legisla-

tion protecting women against early marriage, sexual exploitation and violence; and in ensuring that women have equal access to education, are guaranteed equal opportunity to work and receive equal pay for equal work.

4. Participation of programme users

Effective information, education and communication programme interventions should involve members of the target population in all the steps covering the initial assessment of the reproductive health situation, as well as in the planning, implementation, monitoring and evaluation of information, education and communication activities. Influential community leaders—those who can help affect the reinforcement of the proposed changes and behaviours, and those in a position to make needed resources available—should all be consulted and involved.

The experiences in various programmes indicate that community participation in health care through the training of local paramedical staff, village health workers and traditional birth attendants has produced a major impact in the reduction of infant and child morbidity and mortality rates. Many of the country reports that were prepared for the International Conference on Population and Development confirm this conclusion. The same national reports also indicate that these important achievements were followed by an increase in literacy in developing countries, particularly among women (World Health Organization, 1994b).

Participation in the design, implementation and evaluation of information, education and communication programme interventions is even more crucial in the case of activities designed for adolescents. Young people have their own perspectives, ideas and opinions in many areas, particularly about sexual and reproductive health issues. Communicating effectively with them requires their direct participation. Reaching young people means involving them in, and placing them at the centre of, those activities.

5. Training of personnel

Health professionals should be trained in basic information, education and communication matters so as to be able to cater to the special needs of the populations they serve, including in the areas of interpersonal communication, sexuality and counselling, as well as team-building; such training should promote their capacity to work with social welfare workers, teachers, parents and community leaders. Health professionals have to be sensitized to reproductive health needs and how to address them appropriately.

Training programmes for health personnel should also include activities and information that will enable them to dispel the myth that knowledge of reproductive health, including sexuality and contraception, increases promiscuity. Such programmes should also include information and participatory educational methodologies that will facilitate an understanding by health personnel of how best to communicate with their clientele, with particular emphasis on sexuality and gender roles, within the current cultural, social and legal climate of each locality or country.

Academic curricula should be restructured, for the basic professional training of teachers at national, regional and local levels, so as to incorporate interpersonal communication and counselling skills, innovative peer-to-peer approaches, and interactive teaching methods and information to promote an understanding of adolescent sexuality and maturation, as well as other areas of sexuality and reproductive health issues.

Training of educators and student peers to work with other students in educational and counselling activities should focus on techniques dealing with problem-solving, listening, non-judgemental communication, conflict resolution, decision-making, counselling and basic education, as well as sexual and reproductive health needs. Biomedical and epidemiological information about the dire health consequences of unprotected sexual relations and too early pregnancy among young people should be included.

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ANNEX TABLES

Table A.1. Total fertility rates, selected years, 1980-1995

Major area or region and country	*1980s*		*1990s*	
	Period	*TFR*	*Period*	*TFR*
Africa				
Eastern Africa				
Burundi	1982-1987	7.0	..	..
Ethiopia	1983/84	7.5[a]	..	..
Kenya	1983/84	7.7	1990-1993	5.4
Madagascar	1979/80	6.6[b]	1989-1992	6.1
Malawi	1981/82	7.6	1989-1992	6.7
Mauritius	1983	2.3	1990	2.3
Mozambique	1975-1980	6.5	..	..
Réunion	1982	2.8	1990	2.6
Rwanda	1980-1983	8.4	1989-1992	6.2
Somalia	1980	7.3[a]	..	..
Uganda	1984-1989	7.3	..	..
United Republic of Tanzania	..	..	1988/89-1991/92	6.3
Zambia	1979/80	7.2[a]	1989-1992	6.5
Zimbabwe	1983/84	6.5	1990-1994	4.4
Middle Africa				
Angola	..	..	..	..
Cameroon	1987	5.5	1988-1991	5.8
Central African Republic	..	..	1992/93-1994/95	5.1
Chad	..	..	..	..
Congo	1984	6.0	..	..
Democratic Republic of the Congo (formerly Zaire)	1983/84	6.7	..	..
Equatorial Guinea	1982	5.5	..	..
Gabon	..	..	..	..
Northern Africa				
Algeria	1982	6.8	1987-1992	4.4
Egypt	1983-1988	4.8	1987-1992	4.2
Libyan Arab Jamahiriya	..	..	..	..
Morocco	1982-1987	4.8	1987-1992	4.2
Sudan	1982/83	6.9	1984/85-1989/90	5.0
Tunisia	1983-1988	4.4	1992	3.3
Southern Africa				
Botswana	1983-1988	5.0	..	..
Lesotho	..	..	1991	4.8
Namibia	1977-1982	6.0[c]	1989-1992	5.4
South Africa	..	..	..	..
Swaziland	1983-1988	5.4	..	..
Western Africa				
Benin	..	..	..	..
Burkina Faso	1984/85	7.2	1988-1993	6.9
Cape Verde	..	..	..	..
Côte d'Ivoire	1981	6.8[a]	1990-1994	5.7
Gambia	1983	6.4	..	..
Ghana	1983-1988	6.4	1988-1993	5.5
Guinea	..	..	..	..
Guinea-Bissau	..	..	..	..

Table A.1 *(continued)*

Major area or region and country	*1980s*		*1990s*	
	Period	*TFR*	*Period*	*TFR*
Liberia	1981-1986	6.6	..	..
Mali	1982-1987	6.9	..	..
Mauritania	1977-1981	6.3	1988-1991	5.0
Niger	1987/88	7.5	1986-1992	7.4
Nigeria	1977-1982	6.3	1986-1990	6.2
Senegal	1981-1986	6.6	1989/90-1992/93	6.0
Sierra Leone	1984	6.3	..	..
Togo	1983-1988	6.6	..	..
Latin America and the Caribbean				
Caribbean				
Cuba	1981	1.6	1992	1.5
Dominican Republic	1983	4.1	1988-1991	3.3
Guadeloupe	1985	2.6	..	..
Haiti	1982-1983	5.9	1988-1989	5.8
Jamaica	1981-1983	3.5	1986-1988	2.9
Martinique	..	..	1990	1.9
Puerto Rico	1980	2.7	1990	2.3
Trinidad and Tobago	1982-1987	3.2	..	..
Central America				
Costa Rica	1981-1985	3.5	1988-1993	3.2
El Salvador	1980-1985	4.4	1988-1993	3.9
Guatemala	1982-1987	5.6[a]	..	..
Honduras	1980-1981	6.4[a]	1988-1991	5.1[a]
Mexico	1981	4.3	1990	3.9
Nicaragua	1980-1985	5.8[a]	1987-1992	4.6
Panama	1984	3.7	1990	2.9
South America				
Argentina	1980	3.4	1990	2.9
Bolivia	1984-1989	5.1	1991-1994	4.8
Brazil	1981-1986	3.7[a]	..	..
Chile	1982	2.6	1992	2.5
Colombia	1981-1986	3.3	1987-1990	2.9
Ecuador	1981-1982	4.9	1989-1994	3.6
Guyana	1980	3.3	..	..
Paraguay	1986-1987	5.4	1987-1990	4.7
Peru	1983-1986	4.1	1989-1992	3.5
Suriname	..	..	1990	2.9
Uruguay	1985	2.5	..	..
Venezuela	1981	4.2	1990	3.6
Asia				
Eastern Asia				
China	1981	2.6	1990	2.3
Democratic People's Republic of Korea	..	..	1993	2.4
Hong Kong, China	1986	1.4	1990	1.2
Japan	1985	1.8	1992	1.5
Mongolia	1983	5.5	1993	3.4
Republic of Korea	1985	1.7	1990	1.6

Table A.1 *(continued)*

Major area or region and country	*1980s*		*1990s*	
	Period	*TFR*	*Period*	*TFR*
South-central Asia				
Afghanistan	1979	7.6	..	..
Bangladesh	1984-1988	5.1	1991-1993	3.4
Bhutan	1984	5.9	..	..
India	1981	4.9	1992-1993	3.4
Iran, Islamic Republic of	1988/89	5.2	..	..
Kazakhstan	1981-1982	2.9	1991	2.7
Kyrgyzstan	1981-1982	4.1	1992	3.6
Nepal	1980-1985	5.6	1990	5.1
Pakistan	1984-1985	6.0	1985-1991	5.4
Sri Lanka	1982-1987	2.8	1988-1993	2.3
Tajikistan	1982	5.6	1990	5.1
Turkmenistan	1981-1982	4.8	1990	4.2
Uzbekistan	1982	4.7	1990	4.1
South-eastern Asia				
Brunei Darussalam	1986	3.5	1991	3.1
Cambodia	1980	6.3	..	..
East Timor	..	..	1990-1993	4.7
Indonesia	1983-1987	3.4	1990-1993	2.9
Lao People's Democratic Republic	1987-1988	6.8	1993	5.7
Malaysia	1980	3.9	1990	3.3
Myanmar	1983	4.8	1990	3.1
Philippines	1983-1986	4.4	1990-1993	4.1
Singapore	1980	1.7	1992	1.9
Thailand	1980-1981	3.7	1991	1.8
Viet Nam	1985-1987	4.1	1989-1993	3.3
Western Asia				
Armenia	1982	2.4	1991	2.6
Azerbaijan	1982	3.1	1990	2.7
Bahrain	1988-1989	4.2	1991	3.8
Cyprus	1980	2.5	1991	2.0
Gaza Strip	1981	7.2	1991	7.4
Georgia	1981-1982	2.3	1990	2.2
Iraq	1988/89	5.3	..	..
Israel	1983	3.2	1991	2.9
Jordan	1981-1983	6.6	1987-1990	5.6
Kuwait	1986-1987	6.5[d]	..	..
Lebanon	..	..	..	..
Oman	1987-1989	7.8	..	..
Qatar	1985-1987	4.5	..	..
Saudi Arabia	1986-1987	6.5	..	..
Syrian Arab Republic	..	..	1988-1993	4.2
Turkey	1978-1983	4.2	1990-1993	2.5
United Arab Emirates	1986-1987	6.0	..	..
Yemen	1986	8.7	1989-1992	7.7

Source: List of sources follows notes to table.

[a]Adjusted rate.

[b]Survey carried out in rural areas and secondary urban areas.

[c]Estimated from data 15 years prior to the survey.

[d]Referring only to Kuwaiti nationals.

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Table A.2. Trends in total fertility rates, more developed regions, 1980-1994

Major area, region and country	Year							
	1980	1985	1989	1990	1991	1992	1993	1994[a]
Asia								
Japan	..	1.74	1.57	1.54	1.54	..	1.43	..
Europe								
Eastern Europe								
Belarus	2.00	2.07	2.03	1.91	1.80	..	..	..
Bulgaria	2.05	1.95	1.86	1.73	1.57	1.53	1.45	..
Czech Republic	2.07	1.95	1.87	1.89	1.86	1.70	..	..
Hungary	1.92	1.83	1.78	1.84	1.86	1.77	1.68	..
Poland	2.28	2.33	2.08	2.04	2.05	1.93	1.85	..
Republic of Moldova	2.36	2.66	2.50	2.39	2.26	2.21	..	..
Romania	2.45	2.26	2.19	1.83	1.56	1.51	1.44	..
Russian Federation	1.88	2.06	2.01	1.89	1.75	1.55	1.35	..
Slovakia	2.32	2.25	2.03	2.09	2.05	1.98	1.92	..
Ukraine	1.95	2.02	1.92	1.89	1.81	1.72	..	..
Northern Europe								
Denmark	1.55	1.45	1.62	1.67	1.68	1.76	1.75	1.81
Estonia	2.02	2.13	2.20	2.03	1.78	1.66	1.44	..
Finland	1.63	1.64	1.71	1.78	1.80	1.85	1.82	1.85
Iceland	2.48	1.93	2.20	2.31	2.19	2.21	2.22	2.11
Ireland	3.23	2.50	2.08	2.12	2.08	2.02	..	1.86
Latvia	1.90	2.09	2.05	2.02	1.86	1.73	1.51	..
Lithuania	2.00	2.41	1.98	1.90	..	1.89	..	..
Norway	1.72	1.68	1.89	1.93	1.92	1.88	1.86	1.87
Sweden	1.68	1.73	2.02	2.14	2.11	2.09	2.00	1.89
United Kingdom	1.89	1.79	1.79	1.83	1.82	1.79	..	1.74
Southern Europe								
Albania	3.62	3.26	2.96	3.03	..	..	..	..
Bosnia and Herzegovina	1.88	1.89	1.70	1.70	..	..	..	..
Croatia	..	..	..	1.69	1.50	..	..	..
Greece	2.23	1.68	1.43	1.42	1.40	1.39	1.35	1.38
Italy	1.69	1.41	1.33[b]	1.29[b]	1.26[b]	1.25	1.21	1.19
Malta	1.98	1.99	2.11	2.05	2.04	2.12	..	..
Portugal	2.19	1.70	1.48	1.54	1.51	1.55	1.53	1.44
Slovenia	2.11	1.72	1.55	1.48	1.46	1.34	1.31	..
Spain	2.22	1.63	1.38	1.30	1.28	1.23	1.24	1.22
The former Yugoslav Republic of Macedonia	2.45	2.31	2.09	2.06	2.30	2.18	..	..
Federal Republic of Yugoslavia								
Montenegro	2.13	2.11	1.84	1.79	..	..	..	..
Serbia	2.28	2.23	2.09	2.10	..	..	..	..
Western Europe								
Austria	1.65	1.47	1.45	1.45	1.50	1.51	1.51[b]	1.45
Belgium	1.69	1.51	1.58	1.62[a]	1.57[a]	1.56[a]	..	1.55
France	1.95	1.81	1.79	1.78	1.77	1.73	1.65	1.66
German Democratic Republic[c]	1.94	1.73	1.57	1.52	0.98	0.83[b]	0.81[b]	0.77[b]
Germany, Federal Republic of[c]	1.45	1.28	1.40	1.45	1.42	1.40[b]	1.39[b]	1.34[b]
Luxembourg	1.50	1.38	1.52	1.62	1.60	1.67	1.70	1.72
Netherlands	1.60	1.51	1.55	1.62	1.61	1.59	1.57	1.56
Switzerland	1.55	1.52	1.56	1.59	1.61	1.60	1.56[b]	..
Northern America								
Canada	1.63	1.63	1.62	1.66	..	..	..	..
United States of America	1.84	1.83	2.01	2.01	2.01	..	..	..
Oceania								
Australia	1.94	1.89	1.84	1.91	1.85	1.89	1.87	..
New Zealand	2.03	1.93	2.12	2.18	2.16	2.12	2.10	..

Sources: Council of Europe, *Recent Demographic Developments in Europe, 1994* (Strasbourg, Council of Europe Press, 1994); Eurostat, *Demographic Statistics 1994* (Luxembourg, 1994); Eurostat, *Statistics in Focus*, 1995, No. 8 (Luxembourg, 1995); Japan: *The Journal of Population Problems*, vol. 51, No. 1 (Tokyo, Institute of Population Problems, 1995); Australia: *Australian Demographic Statistics 1994* (Australian Bureau of Statistics); New Zealand: *Demographic Trends, 1994* (Wellington, Statistics New Zealand, 1995).

[a] Provisional.

[b] Estimate.

[c] Through accession of the German Democratic Republic to the Federal Republic of Germany with effect from 3 October 1990, the two German States have united to form one sovereign State. As from the date of unification, the Federal Republic of Germany acts in the United Nations under the designation "Germany". For some statistical data that predate the unification, it has been necessary to refer occasionally to the former States of the Federal Republic of Germany and the German Democratic Republic.

Table A.3. Trends in age-specific fertility rates for women aged 15-19 in Africa, Asia, and Latin America and the Caribbean, 1970-1994

Major area or region and country	*Prior to 1980*[a]	*ASFR*[b] *aged 15-19 (per 1,000)*	*1980s*	*ASFR aged 15-19 (per 1,000)*	*1990s*	*ASFR aged 15-19 (per 1,000)*
Africa						
Eastern Africa						
Burundi	1970/71	49	1982-1987	52	..	..
Ethiopia	1968-1971	145	1983/84	125	..	..
Kenya	1972-1978	178	1984-1989	152	1990-1992	110
Madagascar	1975	132	1980	125	1989-1992	157
Malawi	1976/77	165	1984	168	1990-1992	161
Mauritius	1972	50	1987	41	1991	46
Mozambique	1965-1970	121	1975-1980	131	..	..
Réunion	1971	66	1986	49	..	..
Rwanda	..	..	1980-1983	79	1989-1992	60
Uganda	1974-1979	222	1984-1989	187	..	..
United Republic of Tanzania	1977-1978	147	..	..	1988-1992	139
Zambia	..	..	1980	153	1988-1992	152
Zimbabwe	1969	79	1985-1988	103	..	..
Middle Africa						
Cameroon	1973-1978	187	1987	143	1988-1991	164
Central African Republic	..	..	..	..	1989-1994	155
Congo	1974	107	1984	138	..	..
Northern Africa						
Algeria	1970	109	1985	43	..	..
Egypt	1975-1979	99	1983-1988	83	1990-1992	63
Morocco	1970-1975	133	1982-1987	49	..	..
Sudan	1975-1979	114	..	..	1984-1990	69
Tunisia	1970	46	1983-1988	30	1992	18
Southern Africa						
Botswana	1971	120	1983-1988	125	..	..
Lesotho	1971-1973	61	..	..	1991	54
Namibia	1973-1977	114	..	..	1988-1992	101
South Africa	..	..	..	..	1990	51[c]
Swaziland	..	..	1984-1988	54	..	..
Western Africa						
Burkina Faso	..	..	1984-1985	152	1988-1993	154
Côte d'Ivoire	..	..	1980-1981	217	1991-1994	151
Ghana	1974-1979	136	1983-1988	124	1989-1993	119
Liberia	1973	166	1981-1986	184	..	..
Mali	..	..	1982-1987	201	..	..
Mauritania	..	..	1977-1981	155	1988-1990	44
Niger	..	..	1980-1981	160	1988-1992	219
Nigeria	..	..	1977-1982	173	1987-1990	144
Senegal	1973-1978	188	1981-1986	159	1989-1993	127
Sierra Leone	1973	212	1984	202	..	..
Togo	..	..	1983-1988	127	..	..

Table A.3 *(continued)*

Major area or region and country	*Prior to 1980[a]*	*ASFR[b] aged 15-19 (per 1,000)*	*1980s*	*ASFR aged 15-19 (per 1,000)*	*1990s*	*ASFR aged 15-19 (per 1,000)*
Asia						
Eastern Asia						
China	1970	39	1989	21	..	..
Hong Kong, China	1970	18	1987	6	1990	6
Japan	1979	6	1986	4	1992	4
Mongolia	..	..	..	..	1989-1994	92
Republic of Korea	1966-1970	18	1985	7	1990	4
South-central Asia						
Afghanistan	1979	160	..	..		
Bangladesh	1973/74	229	1983	239	1988-1994	140
India	1978	89	1984	86	1989-1993	116
Iran, Islamic Republic of	1973-1977	174	1986	149	1993	105
Kazakhstan	..	..	1989	48	1991	54
Kyrgyzstan	..	..	..	..	1992	55
Nepal	1971-1975	130	1985/86	94	1990	98
Pakistan	1970-1975	152	1975-1980	99	1990-1991	84
Sri Lanka	1970	47	1982-1987	38	1988-1993	35
Tajikistan	..	..	1989	39	1990	41
Turkmenistan	..	..	1989	22	1990	24
Uzbekistan	..	..	1989	42	1990	44
South-eastern Asia						
East Timor	..	..	..	..	1991-1994	49
Indonesia	1967-1970	155	1982-1987	75	1992-1994	61
Malaysia	1970	54	1987	21	1990	19
Myanmar	..	..	1983	43	1990	32
Philippines	1970	56	1984	47	1990-1992	50
Singapore	1970	26	1987	8	1992	8
Thailand	1970-1974	69	1982-1987	52	1992	43
Viet Nam	..	..	1985-1987	19	1993	41
Western Asia						
Armenia	..	..	1989	64	1991	80
Azerbaijan	..	..	1989	28	1990	28
Bahrain	1971	288	1988-1989	16	1991	20
Cyprus	1970	18	1986	28	1992	29
Georgia	..	..	1989	58	..	..
Iraq	1972	129	1988-1989	87	..	..
Israel	1970	50	1987	21	1991	20
Jordan	1972-1976	135	1981-1983	49	1988-1990	49
Kuwait	1970	132	1984	57	1986-1987	42
Lebanon	1970	40	..	..	..	..
Oman	..	..	1987-1989	134	..	..
Qatar	..	..	1985-1987	43	..	..
Saudi Arabia	..	..	1986-1987	55	..	..
Syrian Arab Republic	1973-1978	123	..	..	1988-1993	62
Turkey	1974-1979	76	1978-1983	68	1989-1993	57
United Arab Emirates	..	..	1986-1987	55	..	..
Yemen	1976-1978	170	1980/81	181	1988-1992	104

Table A.3 *(continued)*

Major area or region and country	*Prior to 1980*[a]	*ASFR*[b] *aged 15-19 (per 1,000)*	*1980s*	*ASFR aged 15-19 (per 1,000)*	*1990s*	*ASFR aged 15-19 (per 1,000)*
Latin America and the Caribbean						
Caribbean						
Barbados	1968-1970	75	1980	71[d]	1988	44
Bahamas	1975	64	1985	68	1990	54
Cuba	1970	128	1986	81	1990	78
Dominican Republic	1970-1974	123	1981-1986	104	1988-1991	88
Guadeloupe	1975	59	1985	37	..	..
Haiti	1973-1977	57	1982-1983	90	1988-1989	103
Jamaica	1971-1976	147	1982	120[d]	1990-1992	107
Martinique	1976	49	..	..	1990	32
Puerto Rico	1970	73	1985	66	1990	78
Trinidad and Tobago	1970	83	1982-1987	84	1989	70
Central America						
Costa Rica	1971	99	1984	96	1988-1993	87
El Salvador	1971	149	1984-1985	129	1988-1993	124
Guatemala	1970	135	1982-1987	139	..	..
Honduras	1972	179	1981	138	1988-1991	132
Mexico	1970	124	1986	84	1990	100
Panama	1970	134	1986	94	1990	91
South America						
Argentina	1970	69	1980	82	1990	72
Bolivia	1970-1975	95	1984-1989	94	1991-1994	94
Brazil	1970	75	1981-1986	81	1990	53
Chile	1970	69	1986	59	1991	65
Colombia	1971-1975	101	1981-1986	78	1987-90	70
Ecuador	1970-1974	118	1982-1987	91	1992	53
Guyana	1970-1975	114	..	..	..	..
Paraguay	1974-1979	86	..	..	1987-1990	97
Peru	1973-1978	84	1983-1986	80	1989-1992	61
Uruguay	1973	60	1980[c]	66	..	..
Venezuela	1977	111	1987	101	1990	109

Sources: Adolescent Reproductive Behaviour, vol. II. Evidence from Developing Countries, Population Studies, No. 109/Add.1 (United Nations publication, Sales No. E.89.XIII.10), tables 1, 2, and 3; *Fertility Behaviour in the Context of Development: Evidence from the World Fertility Survey*, Population Studies, No. 100 (United Nations publication, Sales No. E.86.XIII.5), table 12; *Demographic Yearbook*, 1988 to 1993; various *Demographic and Health Surveys* country reports; and *Gulf Child Health Surveys*; see also references in table B.1.

[a]When period rather than single years is given, the fertility rate refers to period average.

[b]ASFR = Age-specific fertility rate per 1,000 women aged 15-19, including births that occurred before age 15.

[c]Referring to black population. Rate for white population is 16 per 1,000 and rate for Asian population is 32 per 1,000.

[d]Birth data tabulated by date of registration rather than of occurrence.

Table A.4. Trends in age-specific fertility rates for women aged 15-19 in Europe, Northern America and Oceania, 1970-1992

Major area or region and country	*Around 1975*	*ASFR (per 1,000)*	*Around 1980*	*ASFR (per 1,000)*	*Around 1985*	*ASFR (per 1,000)*	*Around 1990*	*ASFR (per 1,000)*
Europe								
Eastern Europe								
Belarus	..	..	..	..	..	..	1991	45
Bulgaria	1975	75	1980	81	1986	81	1990	70
Czech Republic	..	..	..	..	..	..	1991	49
Hungary	1975	73	1980	69	1987	48	1991	37
Poland	1975	31	1980	33	1987	32	1991	32
Romania	1975	70	1980	73	1985	58	1991	51
Russian Federation	..	..	..	..	..	..	1992	51
Slovakia	1970	39	1980	49	..	..	1991	45
Ukraine	..	..	..	..	..	..	1991	60
Northern Europe								
Denmark	1975	27	1980	16	1987	10	1991	9
Estonia	..	..	..	..	1989	48	..	..
Finland	1975	18	1980	19	1986	13	1990	12
Ireland	1975	23	1980	23	1985	17	1991	17
Latvia	..	..	..	..	..	..	1992	48
Lithuania	..	..	..	..	..	..	1992	47
Norway	1975	40	1980	25	1987	18	1991	17
Sweden	1975	29	1980	16	1987	11	1991	13
United Kingdom	1975	36	1980	31	1985	30	1991	33
Southern Europe								
Albania	1970	39	1980	22	1985	16	1990	15
Bosnia and Herzegovina	..	..	..	..	..	..	..	..
Croatia	..	..	..	..	1986	36	1990	29
Greece	1975	45	1980	53	1984	41	1992	19
Italy	1977	22	1980	20	1982	17	1991	6
Malta	..	..	..	..	..	..	1992	12
Portugal	1975	37	1980	40	1987	28	1991	24
Slovenia	..	..	..	..	..	..	1991	22
Spain	1974	21	1981	23	..	..	1991	11
The former Yugoslav Republic of Macedonia	..	..	..	..	..	..	1992	44
Federal Republic of Yugoslavia	1975	55	1980	48	1987	41	1990	37
Western Europe								
Austria	1975	48	1980	35	1985	23	1991	23
Belgium	1975	28	1980	20	1983	16	..	..
France	1975	26	1980	18	1987	10	1990	9
German Democratic Republic*	1975	62	1980	54	1985	44	..	..
Germany, Federal Republic of*	1975	21	1980	15	1986	9	..	..
Luxembourg	1974	24	1981	17	1987	12	1992	9
Netherlands	1975	13	1980	9	1986	7	1991	8
Switzerland	1975	15	1980	10	1987	6	1990	7
Northern America								
Canada	1975	34	1980	27	1987	23	1990	26
United States of America	1975	58	1980	54	1986	52	1990	78
Oceania								
Australia-New Zealand								
Australia	1975	41	1980	28	1983	27	1990	22
New Zealand	1975	54	1980	39	1987	32	1990	34

Sources: *Demographic Yearbook, 1978. Historical Supplement* (United Nations publication, Sales No. 79.XIII.8), table 6; *Demographic Yearbook, 1988* (United Nations publication, Sales No. E/F. 89.XIII.1), table 24; *Demographic Yearbook, 1993* (United Nations publication, Sales No. E/F. 95.XIII.1), table 11.

Albania: 1970-1990: *1991 Statistical Yearbook of Albania* (Albania, Ministria e Ekonomise),p. 58, table 40; Croatia: 1986, 1990: *1992 Statistical Yearbook* of the Republic of Croatia, (Zagreb, Central Bureau of Statistics, 1993), p. 88, table 4-20; Czech Republic: 1990-1992: *1993 Czech Republic Reproductive Health Survey*, Final report (Prague and Atlanta: Centers for Disease Control, 1995), p. 47, table III.3; Luxembourg: 1992: *Social Trends 25, 1995 edition* (London, Central Statistical Office, 1995), p. 39, table 2.21; Slovak Republic: 1970-1991: *Statistical Yearbook of the Slovak Republic 1992* (Bratislava, Statistical Office, 1993), p. 112, table III.1-11; Spain and Italy: 1991: *Social Trends 25, 1995 edition* (London, Central Statistical Office, 1995), p. 39, table 2.21.

*Through accession of the German Democratic Republic to the Federal Republic of Germany with effect from 3 October 1990, the two German States have united to form one sovereign State. As from the date of unification, the Federal Republic of Germany acts in the United Nations under the designation "Germany". For some statistical data that predate the unification, it has been necessary to refer occasionally to the former States of the Federal Republic of Germany and the German Democratic Republic.

Table A.5. Percentage of women with knowledge of any contraceptive method, and percentage with knowledge of a source of family planning services, developing countries

Region and country	Year	Base population	Percentage who know of a	
			Method	Source
Africa				
Algeria	1986	EM < 50	98	..
Benin	1982	EM 15-49	40	..
Botswana	1984	All 15-49	75	69
	1988	All 15-49	95	95
Burkina Faso	1993	All 15-49	66[a]	30
Burundi	1987	All 15-49	70	62[b]
Cameroon	1978	EM 15-49	34	..
	1991	All 15-49	72	54
Côte d'Ivoire	1980	CM 15-49	26[a]	..
Egypt	1984	EM < 50	85	81
	1992	CM 15-49	100	93
Ethiopia	1990	All 15-49	63	..
Ghana	1979/80	CM 15-49	69	43
	1988	All 15-49	76	70
Kenya	1977/78	CM 15-49	94	42[c]
	1993	All 15-49	96	88
Lesotho	1977	CM 15-49	65	27
	1991	All 15-49	79[d]	..
Liberia	1986	All 15-49	72	48
Madagascar	1992	All 15-49	62	46
Malawi	1984	CM 15-49	11[a]	..
	1992	All 15-49	90	80
Mali	1987	All 15-49	42	30[f,g]
Mauritania	1981	CM 15-49	8	..
	1990	CM 15-49	61	
Mauritius	1991	CM 15-44	100	77[h]
Morocco	1979/80	CM 15-49	84	82
	1992	All 15-49	97	94
Namibia	1992	All 15-49	89	78
Niger	1992	All 15-49	76	33
Nigeria	1982	EM 15-49	34	..
	1990	All 15-49	46	34
Réunion	1990	All 15-49	99	..
Rwanda	1992	All 15-49	98	86
Senegal	1978	EM 15-49	60	..
	1993	All 15-49	74	44
Sierra Leone	1969	CM 15-49[i]	78	..

Table A.5 (*continued*)

Region and country	*Year*	*Base population*	*Percentage who know of a*	
			Method	*Source*
Sudan (North)	1978/79	CM 15-49	51	23
	1989/90	CM 15-49	71	60
Swaziland	1988	All 15-49	80	..
Togo	1988	All 15-49	94	81
Tunisia	1978	CM 15-49	95	92[j]
	1988	CM 15-49	99	97
Uganda	1988/89	All 15-49	82	74
United Republic of Tanzania	1991	All 15-49	74	66
Zambia	1992	All 15-49	89	81
Zimbabwe	1984	All 15-49	83	71
	1988/89	All 15-49	96	93
Asia				
Afghanistan	1972/73	EM 15-44	4	..
Bangladesh	1969	CM < 56	63	28
	1993/94	CM 10-49	100	98
Fiji	1974	CM 15-49	100	..
Hong Kong, China	1977	CM 15-49	99	..
	1987	CM 15-49	98[d]	..
India	1970	HW 15-44	78	..
	1980	HW 15-49	95[k]	..
Indonesia	1976	CM < 50	67	53
	1991	CM 15-49	95	93
Islamic Republic of Iran	1989	CM 15-49	91	..
Jordan	1972	EM 15-49	94	..
	1990	CM 15-49	100	95
Lebanon	1971	CM 15-49	100	..
Malaysia	1966/67	CM 15-44	43	28
	1984	CM 15-44	91	94[l]
Nepal	1976	CM 15-49	23	6
	1991	CM 15-49	93	74
Pakistan	1975	CM 15-49	76	32[m]
	1991	CM 15-49	78	46
Philippines	1978	CM 15-49	94	77
	1993	CM 15-49	97	93
Republic of Korea	1979	CM 15-49??	97[d]	94[d]
Singapore	1977	CM 15-44	98[n]	95[o]
	1982	CM 15-44	98	..
Sri Lanka	1975	EM 15-49	91	..
	1987	CM 15-49	96	98
Syrian Arab Republic	1978	EM 15-49	78	..

Table A.5 (*continued*)

Region and country	Year	Base population	Percentage who know of a: Method	Percentage who know of a: Source
Thailand	1969/70	CM 15-44	53	..
	1987	CM 15-49	100	99
Turkey	1963	HW < 45	57	..
	1988	EM 15-49	94	..
Viet Nam	1988	CM 15-49	92[p]	..
Yemen	1979[q]	EM </= 50	25	..
	1991	CM 15-49	60	27
Latin America and the Caribbean				
Antigua	1981	All 15-44	93	..
	1988	All 15-44	99	93[r]
Bahamas	1988	Fcd 15-44	98	95
Barbados	1980/81	All 15-49	97	..
	1988	Fcd 15-44	97	96
Belize	1991	All 15-44	93[d]	..
Bolivia	1983	EM 15-49	58	36[f]
	1989	All 15-49	73	66[f]
Brazil	1986	All 15-44	99	95[d]
Colombia	1976	All 15-49	79	66[f]
	1990	All 15-49	98	94
Costa Rica	1976	CM 20-49	100	89
	1986	CM 15-44	99[d]	98[s]
Cuba	1987	CM 15-49	100	..
Dominica	1981	All 15-44	90	..
	1987	Fcd 15-44	96	95
Dominican Republic	1975	All 15-49	97	..
	1991	All 15-49	100	96
Ecuador	1965/67	CM 15-49	41[d]	..
	1989	All 15-49	89	88[t]
El Salvador	1985	All 15-49	89	..
	1988	All 15-44	95[u]	75[v]
Grenada	1985	All 15-44	92	69[d]
Guatemala	1983	All 15-44	82[w]	..
	1987	All 15-44	70	64
Guyana	1975	EM 15-49	95	..
Haiti	1977	EM 15-50	85	..
	1989	All 15-49	81	66[f,x]
Honduras	1981	CM 15-49	85	76
Jamaica	1975	EM 15-49	98	..
	1993	All 15-44	99[d]	..
Mexico	1976	CM 15-49	90	49
	1987	CM 15-49	91[d]	72[d,y]

Table A.5 (*continued*)

Region and country	*Year*	*Base population*	*Percentage who know of a*	
			Method	*Source*
Montserrat	1984	All 15-44	99[d]	94[d]
Nicaragua	1981	All 15-49	77	..
	1992	All 15-49	94[d]	..
Panama	1977	CM 20-49	99	..
	1984	CM 15-44	96[d]	..
Paraguay	1979	CM 15-49	96	91
	1990	All 15-44	98[d]	90[z]
Peru	1977	EM 15-49	82	..
	1992	All 15-49	96	89
Saint Kitts and Nevis	1984	All 15-44	99[d]	90[d]
Saint Lucia	1981	All 15-44	92	..
	1988	All 15-44	99	96[r]
Saint Vincent and the Grenadines	1981	All 15-44	98	..
	1988	All 15-44	98	98[r]
Trinidad and Tobago	1977	CM 15-49	99	..
	1987	All 15-49	97	96
Venezuela	1977	CM 15-44	98	68

Source: Levels and Trends of Contraceptive Use as Assessed in 1994 (United Nations publication, Sales No. E.96.XIII.13).

NOTE: Base populations are for ages shown and for the following groups: All = all women; EM = ever married; CM = currently married (including consensual unions if possible); Fcd = fecund women; HW = sample of husbands and wives.

[a]Excluding abstinence.
[b]Fifty-three per cent knowing of a source for a clinical or supply method.
[c]For aged 15-50.
[d]For the pill, the most widely known method.
[e]For traditional medicine, the most widely known method.
[f]For currently married women.
[g]Twenty-two per cent knowing of a source for a scientific clinical or supply method.
[h]1985.
[i]Including single women who have borne a child.
[j]1983.
[k]For male sterilization, the most widely known method.
[l]For age 15-49.
[m]Assuming that women who ever used contraception know of a source.
[n]1973.
[o]Percentage knowing of a government clinic.
[p]For the intrauterine device (IUD), the most widely known method.
[q]For the former Yemen Arab Republic.
[r]For fecund women.
[s]For aged 15-49 in 1981.
[t]1987.
[u]For female sterilization, the most widely known method.
[v]For ages 15-49 in 1985.
[w]Percentage with knowledge of a modern or an effective method.
[x]Assuming that current users know of a source.
[y]1981.
[z]Currently married women aged 15-49.

Table A.6. World abortion policies

	To save the woman's life (1)	To preserve physical health (2)	To preserve mental health (3)	Rape or incest (4)	Foetal impairment (5)	Economic or social reasons (6)	On request (7)	Abortion rate[a] Year (8)	Abortion rate[a] Rate (9)
Africa									
Eastern Africa									
Burundi	X	X	-	-	-	-	-	..	..
Comoros	X	X	-	-	-	-	-	..	..
Djibouti	-	-	-	-	-	-	-	..	..
Eritrea	X	X	-	-	-	-	-	..	..
Ethiopia	X	X	-	-	-	-	-	..	..
Kenya	X	-	-	-	-	-	-	..	..
Madagascar	X	-	-	-	-	-	-	..	..
Malawi	X	X	-	-	-	-	-	..	..
Mauritius[b]	-	-	-	-	-	-	-	..	..
Mozambique[c]	X	-	-	-	-	-	-	..	..
Rwanda	X	X	-	-	-	-	-	..	..
Seychelles	X	X	X	X	X	-	-	1985	13.4
Somalia	X	-	-	-	-	-	-	..	..
Uganda	X	X	X	-	-	-	-	..	..
United Republic of Tanzania	X	X	X	-	-	-	-	..	..
Zambia	X	X	X	-	X	X	-	..	..
Zimbabwe	X	X	-	X	X	-	-	..	..
Middle Africa									
Angola[c]	X	-	-	-	-	-	-	..	..
Cameroon	X	X	-	X	-	-	-	..	..
Central African Republic[d]	-	-	-	-	-	-	-	..	..
Chad	X	-	-	-	-	-	-	..	..
Congo	X	X	-	-	-	-	-	..	..
Democratic Republic of the Congo (formerly Zaire)[b]	X	-	-	-	-	-	-	..	..
Equatorial Guinea	X	-	-	-	-	-	-	..	..
Gabon	X	-	-	-	-	-	-	..	..
Sao Tome and Principe[c]	-	-	-	-	-	-	-	..	..
Northern Africa								..	..
Algeria	X	X	X	X	-	-	-	..	..
Egypt[d]	-	-	-	-	-	-	-	..	..
Libyan Arab Jamahiriya	X	-	-	-	-	-	-	..	..
Morocco	X	X	-	-	-	-	-	..	..
Sudan	X	-	-	X	-	-	-	..	..
Tunisia	X	X	X	X	X	X	X	1991	10.8
Southern Africa								..	..
Botswana	X	X	X	X	X	-	-	..	..
Lesotho	X	-	-	-	-	-	-	..	..
Namibia	X	X	X	X	X	-	-	..	..
South Africa	X	X	X	X	X	-	-	..	..
Swaziland	X	X	X	-	-	-	-	..	..

Table A.6 *(continued)*

	To save the woman's life (1)	To preserve physical health (2)	To preserve mental health (3)	Rapeor incest (4)	Foetal impair-ment (5)	Economic or social reasons (6)	On request (7)	Abortion rate[a] Year (8)	Abortion rate[a] Rate (9)
Western Africa								..	..
Benin	X	-	-	-	-	-	-	..	..
Burkina Faso	X	X	-	-	-	-	-	..	..
Cape Verde	X	X	X	X	X	X	-	..	..
Côte d'Ivoire	X	-	-	-	-	-	-	..	..
Gambia	X	X	X	-	-	-	-	..	..
Ghana	X	X	X	X	X	-	-	..	..
Guinea	X	X	X	-	-	-	-	..	..
Guinea-Bissau[e]	X	-	-	-	-	-	-	..	..
Liberia	X	X	X	X	X	-	-	..	..
Mali	X	-	-	-	-	-	-	..	..
Mauritania	X	-	-	-	-	-	-	..	..
Niger	X	-	-	-	-	-	-	..	..
Nigeria	X	-	-	-	-	-	-	..	..
Senegal	X	-	-	-	-	-	-	..	..
Sierra Leone	X	X	X	-	-	-	-	..	..
Togo[c]	X	-	-	-	-	-	-	..	..
Asia									
Eastern Asia									
China	X	X	X	X	X	X	X	1989	37.5
Democratic People's Republic of Korea	X	X	X	X	X	X	X	..	..
Japan[f]	X	X	X	X	-	X	-	1992	15.4
Mongolia	X	X	X	X	X	X	X	1991	44.0[g]
Republic of Korea	X	X	X	X	X	-	-	1989	6.4
South-eastern Asia									
Brunei Darussalam	X	-	-	-	-	-	-	..	..
Cambodia	X	-	-	-	-	-	-	..	..
Indonesia	X	-	-	-	-	-	-	..	..
Lao People's Democratic Republic	X	-	-	-	-	-	-	..	..
Malaysia	X	X	X	-	X	-	-	1988	6.4
Myanmar	X	-	-	-	-	-	-	..	..
Philippines[h]	-	-	-	-	-	-	-	..	..
Singapore	X	X	X	X	X	X	X	1992	22.7
Thailand	X	X	-	X	X	-	-	..	..
Viet Nam	X	X	X	X	X	X	X	1992	100.1
South-central Asia									
Afghanistan	X	-	-	-	-	-	-	..	..
Bangladesh	X	-	-	-	-	-	-	1990	3.2
Bhutan[i]	-	-	-	-	-	-	-	..	..
India[j]	X	X	X	X	X	-	-	1990	3.2
Iran (Islamic Republic of)	X	-	-	-	-	-	-	..	..
Kazakhstan	X	X	X	X	X	X	X	1990	85.4[k]
Kyrgyzstan	X	X	X	X	X	X	X	1990	76.3[k]
Maldives	X	X	-	-	-	-	-	..	..
Nepal[l]	-	-	-	-	-	-	-	..	..
Pakistan	X	X	X	-	-	-	-	..	..
Sri Lanka	X	-	-	-	-	-	-	..	..
Tajikistan	X	X	X	X	X	X	X	1991	44.4

Table A.6 *(continued)*

	To save the woman's life (1)	To preserve physical health (2)	To preserve mental health (3)	Rapeor incest (4)	Foetal impair-ment (5)	Economic or social reasons (6)	On request (7)	Abortion rate[a] Year (8)	Rate (9)
Turkmenistan	X	X	X	X	X	X	X	1991	40.9
Uzbekistan	X	X	X	X	X	X	X	1990	47.3
Western Asia									
Armenia	X	X	X	X	X	X	X	1991	29.7
Azerbaijan	X	X	X	X	X	X	X	1991	7.9
Bahrain	X	X	X	-	X	-	-	..	..
Cyprus[b]	X	X	X	X	X	-	-	..	..
Georgia	X	X	X	X	X	X	X	1991	33.4
Iraq	X	X	X	X	X	-	-	..	..
Israel	X	X	X	X	X	-	-	1991	15.1
Jordan	X	X	X	-	-	-	-	..	..
Kuwait	X	X	X	-	X	-	-	..	..
Lebanon	X	-	-	-	-	-	-	..	..
Oman	X	-	-	-	-	-	-	..	..
Qatar	X	X	-	-	X	-	-	..	..
Saudi Arabia	X	X	-	-	-	-	-	..	..
Syrian Arab Republic	X	-	-	-	-	-	-	..	..
Turkey	X	X	X	X	X	X	X	1991	2.8
United Arab Emirates	X	-	-	-	-	-	-	..	..
Yemen	X	-	-	-	-	-	-	..	..
Europe									
Eastern Europe									
Belarus	X	X	X	X	X	X	X	1990	114.3[k]
Bulgaria	X	X	X	X	X	X	X	1992	70.3
Czech Republic	X	X	X	X	X	X	X	1992	47.7
Hungary	X	X	X	X	X	X	-	1993	33.7
Poland	X	X	-	X	X	-	-	1992	1.4
Republic of Moldova	X	X	X	X	X	X	X	1993	42.4
Romania	X	X	X	X	X	X	X	1993	117.2
Russian Federation	X	X	X	X	X	X	X	1991	109.2
Slovakia	X	X	X	X	X	X	X	1993	32.0
Ukraine	X	X	X	X	X	X	X	1992	84.0
Northern Europe									
Denmark	X	X	X	X	X	X	X	1992	16.9
Estonia	X	X	X	X	X	X	X	1993	69.3
Finland	X	X	X	X	X	X	-	1991	10.7
Iceland	X	X	X	X	X	X	-	1992	12.4
Ireland[b]	X	-	-	-	-	-	-	1990	5.4[m]
Latvia	X	X	X	X	X	X	X	1993	50.2
Lithuania	X	X	X	X	X	X	X	1993	45.2
Norway	X	X	X	X	X	X	X	1993	16.1
Sweden	X	X	X	X	X	X	X	1992	20.0
United Kingdom	X	X	X	-	X	X	-	1991	15.3
Southern Europe									
Albania	X	X	X	X	X	X	X	1990	35.9
Andorra	-	-	-	-	-	-	-	..	..
Bosnia and Herzegovina	X	X	X	X	X	X	X	1988	57.5[k]
Croatia	X	X	X	X	X	X	X	1991	40.0

Table A.6 *(continued)*

	To save the woman's life (1)	To preserve physical health (2)	To preserve mental health (3)	Rape or incest (4)	Foetal impairment (5)	Economic or social reasons (6)	On request (7)	Abortion rate[a] Year (8)	Abortion rate[a] Rate (9)
Greece	X	X	X	X	X	X	X	1991	5.3
Holy See	-	-	-	-	-	-	-	..	..
Italy	X	X	X	X	X	X	-	1992	11.7
Malta	-	-	-	-	-	-	-	..	..
Portugal	X	X	X	X	X	-	-	..	..
San Marino[b]	-	-	-	-	-	-	-	..	..
Slovenia	X	X	X	X	X	X	X	1993	26.8
Spain	X	X	X	X	X	-	-	1991	4.8
The former Yugoslav Republic of Macedonia	X	X	X	X	X	X	X	1988	56.6
Yugoslavia	X	X	X	X	X	X	X	1989	90.1
Western Europe									
Austria	X	X	X	X	X	X	X	..	..
Belgium	X	X	X	X	X	X	-	1985	5.1
France	X	X	X	X	X	X	-	1991	13.6
Germany[n]	X	X	X	X	X	-	-	1992	5.4
Liechtenstein	X	X	X	-	-	-	-	..	..
Luxembourg	X	X	X	X	X	X	-	..	..
Monaco	X	-	-	-	-	-	-	..	..
Netherlands	X	X	X	X	X	X	X	1992	5.5
Switzerland	X	X	X	-	-	-	-	1990	8.7
Latin America and the Caribbean									
Caribbean									
Antigua and Barbuda	X	-	-	-	-	-	-	..	..
Bahamas[b]	X	X	X	-	-	-	-	..	..
Barbados	X	X	X	X	X	X	-	..	..
Cuba	X	X	X	X	X	X	X	1990	54.4
Dominica	X	-	-	-	-	-	-	..	..
Dominican Republic[d]	-	-	-	-	-	-	-	..	..
Grenada	X	X	X	-	-	-	-	..	..
Haiti[e]	X	-	-	-	-	-	-	..	..
Jamaica[b]	X	X	X	-	-	-	-	..	..
Saint Kitts and Nevis	X	X	X	-	-	-	-	..	..
Saint Lucia	X	X	X	-	-	-	-	..	..
Saint Vincent and the Grenadines	X	X	X	X	X	-	-	..	..
Trinidad and Tobago	X	X	X	-	-	-	-	..	..
Central America									
Belize	X	X	X	X	X	X	-	1990	25.0
Costa Rica	X	X	-	-	-	-	-	..	..
El Salvador	X	-	-	X	X	-	-	..	..
Guatemala	X	-	-	-	-	-	-	..	..
Honduras[o]	-	-	-	-	-	-	-	..	..
Mexico[p]	X	-	-	X	-	-	-	..	..
Nicaragua	X	-	-	-	-	-	-	..	..
Panama	X	-	-	X	X	-	-	1988	9.4
South America									
Argentina	X	X	-	-	-	-	-	..	..
Bolivia	X	X	-	X	-	-	-	..	..
Brazil	X	-	-	X	-	-	-	..	..

Table A.6 *(continued)*

	To save the woman's life (1)	*To preserve physical health (2)*	*To preserve mental health (3)*	*Rape or incest (4)*	*Foetal impairment (5)*	*Economic or social reasons (6)*	*On request (7)*	*Abortion rate[a]* Year (8)	Rate (9)
Chile	-	-	-	-	-	-	-	..	..
Colombia[b]	-	-	-	-	-	-	-	..	..
Ecuador[a]	X	X	-	X	-	-	-	..	..
Guyana	X	X	X	-	-	-	-	..	..
Paraguay	X	-	-	-	-	-	-	..	..
Peru	X	X	-	-	-	-	-	..	..
Suriname	X	-	-	-	-	-	-	..	..
Uruguay	X	X	-	-	-	-	-	..	..
Venezuela	X	-	-	-	-	-	-	..	..
Northern America									
Canada	X	X	X	X	X	X	X	1991	13.9
United States of America	X	X	X	X	X	X	X	1992	25.9
Oceania									
Australia-New Zealand									
Australia	X	X	X	X	X	X	-	1988	16.6
New Zealand[a]	X	X	X	X	X	-	-	1992	14.2
Melanesia									
Fiji[b]	X	X	X	-	-	-	-	..	..
Papua New Guinea	X	X	X	-	-	-	-	..	..
Solomon Islands	X	-	-	-	-	-	-	..	..
Vanuatu	X	X	-	-	-	-	-	..	..
Micronesia									
Kiribati	X	-	-	-	-	-	-	..	..
Marshall Islands	X	X	X	-	-	-	-	..	..
Micronesia (Federated States of)	..	..	..	..	..	..	..	..	..
Nauru	X	-	-	-	-	-	-	..	..
Palau	..	..	..	..	..	..	..	..	..
Polynesia									
Cook Islands	..	..	..	..	..	..	..	..	..
Niue	..	..	..	..	..	..	..	..	..
Samoa	X	X	X	-	-	-	-	..	..
Tonga	X	-	-	-	-	-	-	..	..
Tuvalu	X	-	-	-	-	-	-	..	..
TOTAL OF COUNTRIES	193	193	193	193	193	193	193		
PERMITTED	173	119	96	81	79	55	41		
NOT PERMITTED	16	70	93	108	110	134	148		
NOT ASCERTAINED	4	4	4	4	4	4	4		

Sources: Abortion Policies: A Global Review, vol. I, *Afghanistan to France* (United Nations publication, Sales No. E.92.XIII.8); vol. II, *Gabon to Norway* (United Nations publication, Sales No. E.94.XIII.2); vol. III, *Oman to Zimbabwe* (United Nations publication, Sales No. E.95.XIII.24).

NOTE: An X indicates that abortion is permitted. A hyphen (-) indicates that abortion is not permitted.

[a]Abortions per 1,000 women aged 15-44, unless otherwise indicated.

[b]Legal interpretation generally permits abortion on the grounds indicated below:

Bahamas and Jamaica—for grounds (4) and (5);
Colombia, Ireland, Mauritius and San Marino—for grounds (1);
Cyprus—for grounds (6);
Democratic Republic of the Congo—for grounds (2) and (5);
Fiji—for grounds (4) to (6).

[c]Official interpretation generally permits abortion on the grounds indicated below:

Angola and Togo—for grounds (2) to (5);
Haiti—for grounds (2), (4) and (5);
Mozambique—for grounds (2) to (7);
Sao Tome and Principe—for grounds (1) to (5).

[d]General principles of criminal law permit abortion on the grounds indicated below:

Central African Republic and Dominican Republic—for grounds (1);
Egypt—for grounds (1) and (2).

[e]For grounds (2) to (7), the Portuguese law forbidding abortion has not been repealed; however, the law is generally not enforced and abortion is largely tolerated.

[f]For grounds (3), permission for an abortion must be considered in conjunction with other grounds.

[g]Abortions per 100 births.

[h]For grounds (1), general principles of the Penal Code permit abortion on these grounds.

[i]For grounds (1), abortion on these grounds may be considered for medical reasons.

[j]For grounds (6), abortion on these grounds may be considered under health grounds.

[k]Abortions per 1,000 women aged 15-49.

[l]For grounds (1) to (5), the Medical Council Rules of 1976 permit abortion to preserve the physical or mental health of the pregnant woman or if there is a possibility of foetal impairment.

[m]Based on number of abortions obtained in England and Wales by residents of Ireland.

[n]For grounds (6) and (7), abortion may be considered during the first 12 weeks of pregnancy if the woman receives counselling geared to the protection of unborn life, based on legislation that went into effect on 21 August 1995.

[o]For grounds (1), the Honduran Code of Medical Ethics allows physicians to perform abortion on these grounds.

[p]For grounds (2), (3) and (5), some state provisions permit abortion on these grounds. Liberal interpretation of the medical indications for abortion may allow abortion to be performed to preserve the physical health of the woman.

[q]For grounds (4), yes, but conditional.

[r]For grounds (4), rape in itself does not constitute grounds for abortion but may be taken into account under medical indications, while a pregnancy occurring as a result of incest can be terminated on juridical grounds.

Table A.7. Population size and its urban and rural distribution, 1995, and components of growth, 1990-1995, major areas and regions (*Thousands*)

Major area and region	*Population*	*Births*	*Deaths*	*Natural increase*	*Net migration*	*Total growth*	*Population*	
		(annual averages)					*Urban areas*	*Rural areas*
World total	5 716 425	137 484	51 166	86 319		86 319	2 584 454	3 131 972
More developed regions[a]	1 166 598	14 497	11 680	2 817	1 831	4 648	873 970	292 628
Less developed regions[b]	4 549 827	122 988	39 486	83 501	-1 831	81 671	1 710 483	2 839 344
Least developed countries	575 407	22 947	8 000	14 947	193	15 140	128 915	446 492
Africa	728 074	28 482	9 338	19 144	-63	19 081	250 276	477 798
Eastern Africa	227 107	9 737	3 348	6 389	-128	6 261	49 335	177 773
Middle Africa	82 326	3 522	1 158	2 364	4	2 368	27 350	54 976
Northern Africa	160 582	4 746	1 303	3 443	69	3 512	73 658	86 924
Southern Africa	47 396	1 431	399	1 032	2	1 034	22 807	24 589
Western Africa	210 663	9 046	3 130	5 916	-10	5 906	77 126	133 537
Asia	3 457 957	83 586	27 918	55 668	-1 366	54 302	1 197 970	2 259 987
Eastern Asia	1 424 155	24 644	9 984	14 659	-171	14 489	525 281	898 873
South-central Asia	1381160	41 264	13 030	28 234	-664	27 569	397 775	983 386
South-eastern Asia	484 252	12 618	3 745	8 873	-485	8 388	163 130	321 122
Western Asia	168 390	5 060	1 158	3 902	-46	3 856	111 783	56 607
Europe	726 999	8 411	8 097	314	739	1 053	535 052	191 947
Eastern Europe	308 709	3 564	3 786	-223	-109	-332	217 470	91 238
Northern Europe	93 542	1 250	1 051	200	47	246	78 281	15 261
Southern Europe	143 922	1 552	1 367	185	-20	165	93 669	50 253
Western Europe	180 826	2 045	1 893	152	821	973	145 632	35 194
Latin America and the Caribbean	482 005	11 961	3 111	8 850	-392	8 458	357 689	124 316
Caribbean	35 796	814	262	551	-99	453	22 347	13 450
Central America	126 419	3 552	677	2 876	-202	2 673	86 011	40 408
South America	319 790	7 595	2 172	5 423	-91	5 332	249 331	70 459
Northern America	292 841	4 516	2 485	2 031	970	3 001	223 403	69 438
Oceania	28 549	528	214	314	111	424	20 063	8 486
Australia-New Zealand	21 663	319	158	161	122	283	18 395	3 268
Melanesia	5 813	177	51	126	-4	122	1 219	4 595
Micronesia	482	15	3	13	-2	11	206	276
Polynesia	591	18	3	15	-6	9	244	347

Sources: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16); and *World Urbanization Prospects: The 1994 Revision* (United Nations publication, Sales No. E.95.XIII.12).

[a]Comprising all regions of Europe and Northern America, Australia-New Zealand and Japan.

[b]Comprising all regions of Africa, Asia (excluding Japan) and Latin America, and regions of Melanesia, Micronesia and Polynesia.

Table A.8. Rates of population growth, fertility, mortality and net migration, major areas and regions, 1990-1995

Major area and region	Crude birth rate	Crude death rate	Net migration rate	Rate of natural increase	Population growth rate	Total fertility rate (children per woman)	Life expectancy at birth		
	(per 1,000 population)			(percentage)			Male	Female	Both sexes
World total	25.0	9.3	0.0	1.57	1.57	3.10	62.4	66.5	64.0
More developed regions [a]	12.6	10.1	1.6	0.24	0.40	1.70	70.6	78.1	74.4
Less developed regions [b]	28.3	9.1	-0.4	1.92	1.88	3.48	60.8	63.8	62.3
Least developed countries	42.7	14.9	0.4	2.78	2.82	5.80	50.1	52.3	51.2
Africa	41.9	13.7	-0.1	2.81	2.81	5.80	51.5	54.6	53.0
Eastern Africa	46.1	15.8	-0.6	3.02	2.97	6.47	48.2	51.1	49.7
Middle Africa	46.1	15.2	0.1	3.09	3.11	6.45	49.7	53.0	51.3
Northern Africa	31.3	8.6	0.4	2.27	2.32	4.19	60.9	63.5	62.2
Southern Africa	31.9	8.9	0.1	2.30	2.31	4.21	59.8	65.6	62.6
Western Africa	46.2	16.0	-0.1	3.02	3.02	6.54	48.3	51.4	49.8
Asia	25.2	8.4	-0.4	1.68	1.64	3.03	63.2	65.9	64.5
Eastern Asia	17.8	7.2	-0.1	1.06	1.04	1.91	67.6	71.9	69.7
South-central Asia	31.4	9.9	-0.5	2.15	2.10	4.12	60.0	60.7	60.3
South-eastern Asia	27.2	8.1	-1.1	1.92	1.81	3.29	61.7	65.5	63.6
Western Asia	31.9	7.3	-0.4	2.46	2.43	4.41	64.7	68.5	66.5
Europe	11.6	11.2	1.0	0.04	0.15	1.58	68.9	77.0	72.9
Eastern Europe	11.5	12.2	-0.4	-0.07	-0.11	1.63	63.8	74.1	68.9
Northern Europe	13.5	11.3	0.5	0.22	0.27	1.84	72.7	78.7	75.7
Southern Europe	10.8	9.5	-0.2	0.13	0.12	1.42	73.0	79.3	76.2
Western Europe	11.5	10.6	4.6	0.09	0.55	1.51	73.0	79.7	76.5
Latin America and the Caribbean	26.0	6.8	-0.9	1.92	1.84	3.09	65.9	71.2	68.5
Caribbean	23.5	7.6	-2.7	1.59	1.31	2.76	67.0	71.4	69.2
Central America	29.7	5.7	-1.7	2.40	2.23	3.52	67.1	72.8	69.9
South America	24.8	7.1	-0.3	1.77	1.74	2.97	65.3	70.6	67.9
Northern America	15.8	8.7	3.4	0.71	1.05	2.06	72.7	79.4	76.1
Oceania	19.2	7.8	4.1	1.14	1.54	2.51	70.3	75.5	72.8
Australia-New Zealand	15.2	7.5	5.8	0.77	1.35	1.92	74.3	80.3	77.3
Melanesia	32.1	9.2	-0.7	2.29	2.22	4.68	58.1	60.3	59.1
Micronesia	33.1	5.7	-3.2	2.75	2.34	4.36	65.8	69.9	67.7
Polynesia	31.5	5.7	-6.0	2.58	1.51	3.74	66.0	70.3	68.1

Sources: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

[a] Comprising all regions of Europe and Northern America, Australia-New Zealand and Japan.

[b] Comprising all regions of Africa, Asia (excluding Japan) and Latin America, and regions of Melanesia, Micronesia and Polynesia.

Table A.9. Births by age of mother and deaths by age, major areas and regions, 1990-1995

Major area and region	Births (thousands)	Births by age group of mother (percentage)			Deaths (thousands)	Deaths by age group (percentage)			
		Under 20	20-34	35 +		0-4	5-14	15-64	65+
World total	687 422	10.9	78.0	11.1	255 830	23.4	5.4	29.7	41.6
More developed regions[a]	72 484	8.7	82.1	9.1	58 398	1.7	0.5	25.9	71.9
Less developed regions[b]	614 938	11.2	77.5	11.3	197 432	29.8	6.8	30.8	32.6
Least developed countries	114 735	17.1	69.1	13.8	40 002	45.1	11.7	28.1	15.1
Africa	142 412	16.7	68.4	14.9	46 691	42.7	12.3	28.9	16.1
Eastern Africa	48 686	17.2	68.6	14.2	16 741	45.1	13.1	28.9	12.8
Middle Africa	17 611	23.0	63.5	13.6	5 789	43.5	13.1	28.5	14.9
Northern Africa	23 732	9.8	75.3	14.9	6 517	32.1	8.3	30.2	29.4
Southern Africa	7 154	12.1	72.1	15.8	1 997	29.9	5.1	34.4	30.5
Western Africa	45 228	18.1	65.8	16.1	15 648	45.9	13.7	27.8	12.6
Asia	417 929	8.5	81.5	10.0	139 588	25.4	5.0	30.7	38.9
Eastern Asia	123 218	3.5	92.6	3.9	49 922	11.6	1.8	31.4	55.2
South-central Asia	206 320	11.2	77.0	11.8	65 150	35.8	7.2	28.6	28.4
South-eastern Asia	63 091	9.1	77.1	13.8	18 725	24.1	5.9	36.7	33.3
Western Asia	25 299	9.8	74.6	15.6	5 790	30.1	5.3	30.5	34.1
Europe	42 056	7.8	83.2	9.0	40 484	1.7	0.6	27.0	70.7
Eastern Europe	17 818	12.1	80.6	7.4	18 931	2.3	0.8	34.5	62.3
Northern Europe	6 252	6.5	83.7	9.8	5 253	1.1	0.3	18.9	79.7
Southern Europe	7 762	5.7	84.6	9.7	6 837	1.7	0.4	21.1	76.8
Western Europe	10 224	2.9	86.3	10.8	9 463	0.9	0.3	20.5	78.3
Latin America and the Caribbean	59 806	15.5	73.2	11.4	15 556	21.8	4.2	34.0	40.0
Caribbean	4 069	15.6	73.2	11.2	1 312	16.8	3.3	31.4	48.5
Central America	17 762	16.6	73.3	10.1	3 383	25.8	4.9	34.0	35.3
South America	37 975	14.9	73.1	12.0	10 862	21.1	4.1	34.3	40.5
Northern America	22 578	12.7	77.6	9.7	12 425	1.9	0.5	24.3	73.3
Oceania	2 642	5.9	79.7	14.4	1 071	8.3	1.9	27.3	62.5
Australia-New Zealand	1 594	5.8	84.5	9.7	789	1.8	0.6	21.4	76.3
Other Oceania	1 048	6.4	72.4	21.3	282	26.4	5.7	43.9	24.0

Sources: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

[a]Comprising all regions of Europe and Northern America, Australia-New Zealand and Japan.

[b]Comprising all regions of Africa, Asia (excluding Japan) and Latin America, and regions of Melanesia, Micronesia and Polynesia.

Table A.10. Infant and child mortality estimates, major areas and regions, 1990-1995

Major area and region	Infant mortality rate (per 1,000 births)	Deaths under one year (thousands)	Probability of dying by age 5 (per 1,000 births)			Deaths between age 0 and age 5 (thousands)		
			Total	Male	Female	Total	Male	Female
World total	64	43 752	86	87	85	59 755	30 878	28 876
More developed regions[a]	10	758	13	15	11	981	572	410
Less developed regions[b]	70	42 995	95	95	94	58 773	30 307	28 467
Least developed countries	110	12 636	163	168	157	18 050	9 499	8 551
Africa	93	13 224	144	151	136	19 943	10 635	9 308
Eastern Africa	106	5 170	160	168	152	7 550	4 013	3 537
Middle Africa	95	1 680	149	158	140	2 518	1 354	1 164
Northern Africa	67	1 584	87	91	83	2 094	1 123	971
Southern Africa	54	390	86	93	78	597	329	269
Western Africa	97	4 400	164	172	156	7 183	3 816	3 367
Asia	65	27 046	83	81	85	35 401	17 699	17 702
Eastern Asia	41	5 042	44	42	46	5 789	2 855	2 934
South-central Asia	83	17 117	114	109	118	23 354	11 466	11 888
South-eastern Asia	55	3 453	71	75	67	4 515	2 446	2 069
Western Asia	57	1 434	70	73	67	1 744	933	811
Europe	12	525	15	18	13	700	414	286
Eastern Europe	18	325	21	25	17	445	269	176
Northern Europe	8	47	9	10	8	56	32	24
Southern Europe	11	85	14	15	13	113	64	49
Western Europe	7	68	8	9	7	86	50	37
Latin America and the Caribbean	45	2 687	56	64	49	3 384	1 951	1 433
Caribbean	42	172	54	61	48	221	126	94
Central America	38	680	50	54	45	873	489	384
South America	48	1 835	60	68	51	2 290	1 335	955
Northern America	9	194	10	12	9	230	129	101
Oceania	27	70	34	34	33	89	46	42
Australia-New Zealand	7	11	9	10	8	14	8	6
Melanesia	59	52	76	75	77	66	34	33
Micronesia	41	3	52	56	48	4	2	2
Polynesia	42	4	51	53	48	4	2	2

Sources: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

[a]Comprising all regions of Europe and Northern America, Australia-New Zealand and Japan.

[b]Comprising all regions of Africa, Asia (excluding Japan) and Latin America, and regions of Melanesia, Micronesia and Polynesia.

Table A.11. Age composition of the population, major areas and regions, 1995

Major area and region	Population by age group (thousands)			Population by age group (percentage)			Sex ratio by age group (males per 100 females)			Dependency ratios		
	0-14	15-64	65+	0-14	15-64	65+	0-14	15-64	65+	Total	Young age	Elderly
World total	1 802 939	3 542 337	371 149	31.5	62.0	6.5	105.0	102.9	75.3	61.4	50.9	10.5
More developed regions[a]	229 170	780 320	157 108	19.6	66.9	13.5	104.9	99.1	62.9	49.5	29.4	20.1
Less developed regions[b]	1 573 769	2 762 017	214 041	34.6	60.7	4.7	105.0	104.0	85.6	64.7	57.0	7.7
Least developed countries	251 348	306 804	17 256	43.7	53.3	3.0	102.5	100.1	84.8	87.5	81.9	5.6
Africa	320 712	384 400	22 963	44.0	52.8	3.2	101.5	98.9	81.9	89.4	83.4	6.0
Eastern Africa	105 279	115 495	6 333	46.4	50.9	2.8	101.1	98.4	80.2	96.6	91.2	5.5
Middle Africa	38 220	41 514	2 593	46.4	50.4	3.1	100.6	96.3	76.7	98.3	92.1	6.2
Northern Africa	62 472	91 986	6 123	38.9	57.3	3.8	104.0	102.5	87.0	74.6	67.9	6.7
Southern Africa	17 978	27 402	2 016	37.9	57.8	4.3	101.3	98.3	77.6	73.0	65.6	7.4
Western Africa	96 763	108 003	5 898	45.9	51.3	2.8	100.8	97.6	82.5	95.1	89.6	5.5
Asia	1 107 788	2 166 686	183 483	32.0	62.7	5.3	106.4	105.5	84.7	59.6	51.1	8.5
Eastern Asia	362 548	964 932	96 675	25.5	67.8	6.8	108.1	106.2	81.4	47.6	37.6	10.0
South-central Asia	512 715	809 683	58 763	37.1	58.6	4.3	106.3	107.0	92.7	70.6	63.3	7.3
South-eastern Asia	168 552	295 012	20 688	34.8	60.9	4.3	103.8	98.5	79.7	64.1	57.1	7.0
Western Asia	63 973	97 059	7 358	38.0	57.6	4.4	104.1	108.3	83.1	73.5	65.9	7.6
Europe	139 913	486 961	100 125	19.2	67.0	13.8	104.9	98.8	59.6	49.3	28.7	20.6
Eastern Europe	64 748	205 881	38 080	21.0	66.7	12.3	104.1	95.6	50.4	49.9	31.4	18.5
Northern Europe	18 415	60 945	14 182	19.7	65.2	15.2	105.0	100.5	68.0	53.5	30.2	23.3
Southern Europe	24 838	98 205	20 879	17.3	68.2	14.5	106.5	99.9	69.9	46.6	25.3	21.3
Western Europe	31 912	121 929	26 984	17.6	67.4	14.9	105.1	102.7	61.5	48.3	26.2	22.1
Latin America and the Caribbean	162 896	294 037	25 073	33.8	61.0	5.2	102.9	98.9	83.3	63.9	55.4	8.5
Caribbean	10 892	22 535	2 368	30.4	63.0	6.6	103.4	98.6	87.8	58.8	48.3	10.5
Central America	47 357	73 905	5 157	37.5	58.5	4.1	103.6	98.4	82.7	71.1	64.1	7.0
South America	104 646	197 596	17 548	32.7	61.8	5.5	102.6	99.1	83.0	61.8	53.0	8.9
Northern America	64 206	191 837	36 798	21.9	65.5	12.6	104.8	98.9	68.5	52.7	33.5	19.2
Oceania	7 429	18 396	2 725	26.0	64.4	9.5	105.1	103.2	77.4	55.2	40.4	14.8
Australia-New Zealand	4 734	14 421	2 508	21.9	66.6	11.6	105.0	102.1	76.1	50.2	32.8	17.4
Melanesia	2 268	3 364	182	39.0	57.9	3.1	105.0	107.1	95.0	72.8	67.4	5.4
Micronesia	192	275	15	39.8	57.1	3.1	104.8	109.9	92.6	75.2	69.7	5.5
Polynesia	235	335	20	39.8	56.8	3.4	107.4	109.0	80.4	76.1	70.1	6.0

Sources: The Sex and Age Distribution of the World Populations: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.2).

[a]Comprising all regions of Europe and Northern America, Australia-New Zealand and Japan.

[b]Comprising all regions of Africa, Asia (excluding Japan) and Latin America, and regions of Melanesia, Micronesia and Polynesia.

Table A.12. Countries or areas with the largest and the smallest population size, 1995

Rank	Country	Population (thousands)
A. The 10 countries or areas with the largest population		
1.	China	1 221 462
2.	India	935 744
3.	United States of America	263 250
4.	Indonesia	197 588
5.	Brazil	161 790
6.	Russian Federation	147 000
7.	Pakistan	140 497
8.	Japan	125 095
9.	Bangladesh	120 433
10.	Nigeria	111 721
B. The 10 countries or areas with the smallest population		
219.	Montserrat	11
220.	Tuvalu	10
221.	Anguilla	8
222.	St. Pierre and Miquelon	6
223.	St. Helena	6
224.	Falkland Islands (Malvinas)	2
225.	Niue	2
226.	Tokelau	2
227.	Holy See	1
228.	Pitcairn	—
C. The 10 States Members of the United Nations with the smallest population		
1.	Seychelles	73
2.	Dominica	71
3.	Andorra	68
4.	Antigua and Barbuda	66
5.	Marshall Islands	54
6.	Saint Kitts and Nevis	41
7.	Monaco	32
8.	Liechtenstein	31
9.	San Marino	25
10.	Palau	17

Source: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

Table A.13. The 20 countries with the highest and the 20 with the lowest percentage of urban population, 1995

Rank	Country	Percentage urban
A. The 20 countries with the highest percentage of urban population		
1.	Cayman Islands	100.0
2.	Gibraltar	100.0
3.	Monaco	100.0
4.	Nauru	100.0
5.	Bermuda	100.0
6.	Singapore	100.0
7.	Guadeloupe	99.4
8.	Macau	98.8
9.	Kuwait	97.0
10.	Belgium	97.0
11.	Hong Kong, China	95.0
12.	Gaza Strip	94.5
13.	San Marino	94.2
14.	Martinique	93.3
15.	Venezuela	92.8
16.	Iceland	91.6
17.	St. Pierre and Miquelon	91.5
18.	Qatar	91.4
19.	Israel	90.6
20.	Uruguay	90.3
B. The 20 countries with the lowest percentage of urban population		
203.	Afghanistan	20.0
204.	Vanuatu	19.3
205.	Bangladesh	18.3
206.	Eritrea	17.2
207.	Solomon Islands	17.1
208.	Niger	17.0
209.	Papua New Guinea	16.0
210.	Montserrat	13.8
211.	Nepal	13.7
212.	Malawi	13.5
213.	Ethiopia	13.4
214.	Oman	13.2
215.	Uganda	12.5
216.	Burundi	7.5
217.	East Timor	7.5
218.	Bhutan	6.4
219.	Rwanda	6.1
220.	Pitcairn	0.0
221.	Wallis and Futuna Islands	0.0
222.	Tokelau	0.0

Source: World Urbanization Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.12).

Table A.14. The 20 largest urban agglomerations, 1995

Rank	Agglomeration and country	Population (millions)
1.	Tokyo, Japan	26.8
2.	São Paulo, Brazil	16.4
3.	New York, United States of America	16.3
4.	Mexico City, Mexico	15.6
5.	Bombay, India	15.1
6.	Shanghai, China	15.1
7.	Los Angeles, United States	12.4
8.	Beijing, China	12.4
9.	Calcutta, India	11.7
10.	Seoul, Republic of Korea	11.6
11.	Jakarta, Indonesia	11.5
12.	Buenos Aires, Argentina	11.0
13.	Tianjin, China	10.7
14.	Osaka, Japan	10.6
15.	Lagos, Nigeria	10.3
16.	Rio de Janeiro, Brazil	9.9
17.	Delhi, India	9.9
18.	Karachi, Pakistan	9.9
19.	Cairo, Egypt	9.7
20.	Paris, France	9.5

Sources: World Urbanization Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.12).

Table A.15. The 10 countries with the highest and the 10 with the lowest fertility, 1990-1995

Rank	Country	Total fertility rate (Children per woman)
	A. The 10 countries with the highest fertility	
1.	Yemen	7.60
2.	Côte d'Ivoire	7.41
3.	Niger	7.40
4.	Uganda	7.30
5.	Oman	7.20
6.	Angola	7.20
7.	Malawi	7.20
8.	Mali	7.10
9.	Benin	7.10
10.	Comoros	7.05
	B. The 10 countries with the lowest fertility	
172.	Russian Federation	1.53
173.	Japan	1.50
174.	Bulgaria	1.50
175.	Romania	1.50
176.	Slovenia	1.46
177.	Greece	1.40
178.	Germany	1.30
179.	Italy	1.27
180.	Spain	1.23
181.	Hong Kong, China	1.21

Sources: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

Table A.16. The 10 countries with the highest and the 10 with the lowest life expectancy, 1990-1995

Rank	Country	Male (years)	Country	Female (years)	Country	Both sexes combined (years)
	A. The 10 countries with the highest life expectancy					
1.	Japan	76.4	Japan	82.5	Japan	79.5
2.	Iceland	75.8	Hong Kong, China	81.8	Hong Kong, China	78.6
3.	Hong Kong, China	75.6	Switzerland	81.2	Iceland	78.3
4.	Sweden	75.4	Sweden	81.1	Sweden	78.2
5.	Greece	75.0	Iceland	80.8	Switzerland	78.0
6.	Cyprus	74.8	France	80.8	Australia	77.7
7.	Australia	74.7	Canada	80.7	Spain	77.6
8.	Switzerland	74.7	Australia	80.6	Greece	77.6
9.	Spain	74.6	Italy	80.6	Italy	77.5
10.	Israel	74.6	Spain	80.5	Netherlands	77.4
	B. The 10 countries with the lowest life expectancy					
172.	Angola	44.9	Mozambique	48.0	Mozambique	46.4
173.	Mozambique	44.9	Mali	47.6	Mali	46.0
174.	Mali	44.4	Gambia	46.6	Malawi	45.6
175.	East Timor	44.2	Malawi	46.2	Gambia	45.0
176.	Guinea	44.0	Uganda	46.2	East Timor	45.0
177.	Uganda	43.6	East Timor	45.9	Uganda	44.9
178.	Gambia	43.4	Guinea-Bissau	45.1	Guinea	44.5
179.	Afghanistan	43.0	Guinea	45.0	Guinea-Bissau	43.5
180.	Guinea-Bissau	41.9	Afghanistan	44.0	Afghanistan	43.5
181.	Sierra Leone	37.5	Sierra Leone	40.6	Sierra Leone	39.0

Source: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

Table A.17. The 10 countries with the highest and the 10 with the lowest infant mortality rate, 1990-1995

Rank	Country	Infant mortality rate (per 1,000 births)
	A. The 10 countries with the highest infant mortality	
1.	Sierra Leone	166
2.	Afghanistan	163
3.	Mali	159
4.	East Timor	150
5.	Mozambique	148
6.	Malawi	143
7.	Guinea-Bissau	140
8.	Guinea	134
9.	Gambia	132
10.	Burkina Faso	130
	B. The 10 countries with the lowest infant mortality	
172.	Australia	7
173.	Hong Kong, China	7
174.	Germany	6
175.	Belgium	6
176.	Singapore	6
177.	Switzerland	6
178.	Sweden	5
179.	Iceland	5
180.	Finland	5
181.	Japan	4

Source: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

Table A.18. Trends in population size and growth for major areas, regions and countries, 1975 - 2015, and Governments' views and policies on population growth and immigration

Major area, region or country	Mid-year population (thousands)			Average annual growth rate (percentage)			Governments' views and policies	
	1975	1995	2015	1990-1995	1975-1995	1995-2015	On population growth and type of intervention to modify growth	On immigration
World total	4 076 985	5 716 426	7 468 925	1.57	1.69	1.34		
More developed regions [a]	1 044 186	1 166 598	1 223 733	0.40	0.55	0.24		
Less developed regions [b]	3 032 799	4 549 828	6 245 191	1.88	2.03	1.58		
Least developed countries	342 509	575 407	945 499	2.82	2.59	2.48		
Africa	413 988	728 074	1 203 919	2.81	2.82	2.51		
Eastern Africa	125 138	227 107	389 691	2.97	2.98	2.70		
Burundi	3 680	6 393	10 743	3.00	2.76	2.60	Too high: intervene to lower	Satisfactory: no intervention
Comoros	316	653	1 257	3.68	3.63	3.28	Too high: intervene to lower	Satisfactory: no intervention
Djibouti	205	577	886	2.20	5.18	2.15	Satisfactory: no intervention	Too high: intervene to lower
Eritrea	2 089	3 531	5 779	2.72	2.63	2.46	Too high: no intervention	Satisfactory: no intervention
Ethiopia	32 221	55 053	97 921	2.98	2.68	2.88	Too high: no intervention	Satisfactory: no intervention
Kenya	13 741	28 261	49 860	3.59	3.61	2.84	Too high: intervene to lower	Satisfactory: no intervention
Madagascar	7 787	14 763	26 860	3.21	3.20	2.99	Too high: intervene to lower	Satisfactory: no intervention
Malawi	5 244	11 129	17 432	3.45	3.76	2.24	Too high: no intervention	Too high: no intervention
Mauritius	892	1 117	1 367	1.10	1.12	1.01	Satisfactory: intervene to maintain	Satisfactory: intervene to lower
Mozambique	10 498	16 004	27 895	2.41	2.11	2.78	Too high: no intervention	Satisfactory: no intervention
Réunion	483	653	825	1.55	1.51	1.17	..	..
Rwanda	4 384	7 952	12 935	2.59	2.98	2.43	Too high: intervene to lower	Satisfactory: no intervention
Seychelles	59	73	88	1.10	1.07	0.92	Too high: intervene to lower	Satisfactory: intervene to maintain
Somalia	5 471	9 250	16 615	1.28	2.63	2.93	Satisfactory: no intervention	Satisfactory: no intervention
Uganda	11 183	21 297	37 078	3.42	3.22	2.77	Too high: intervene to lower	Satisfactory: no intervention
United Republic of Tanzania	15 900	29 685	50 015	2.96	3.12	2.61	Too high: intervene to lower	Satisfactory: no intervention
Zambia	4 841	9 456	15 375	2.97	3.35	2.43	Too high: intervene to lower	Too high: intervene to lower
Zimbabwe	6 143	11 261	16 759	2.57	3.03	1.99	Too high: intervene to lower	Satisfactory: intervene to lower
Middle Africa	45 364	82 326	146 133	3.11	2.98	2.87		
Angola	6 110	11 072	20 394	3.72	2.97	3.05	Satisfactory: no intervention	Satisfactory: no intervention
Cameroon	7 526	13 233	22 989	2.76	2.82	2.76	Too high: intervene to lower	Satisfactory: intervene to lower
Central African Republic	2 057	3 315	5 201	2.49	2.39	2.25	Too high: no intervention	Satisfactory: no intervention
Chad	4 030	6 361	10 455	2.71	2.28	2.48	Satisfactory: no intervention	Satisfactory: intervene to maintain
Congo	1 447	2 590	4 395	2.98	2.91	2.64	Too high: intervene to lower	Satisfactory: intervene to maintain
Democratic Republic of the Congo (formerly Zaire)	23 251	43 901	79 707	3.19	3.18	2.98	Satisfactory: no intervention	Satisfactory: no intervention
Equatorial Guinea	225	400	645	2.55	2.87	2.39	Satisfactory: intervene to maintain	Satisfactory: no intervention
Gabon	637	1 320	2 159	2.83	3.64	2.46	Too low: intervene to raise	Too high: intervene to lower
Sao Tome and Principe	81	133	189	2.20	2.47	1.76	Satisfactory: no intervention	Satisfactory: no intervention
Northern Africa	96 351	160 582	232 496	2.32	2.55	1.85		
Algeria	16 018	27 939	40 106	2.27	2.78	1.81	Too high: intervene to lower	Satisfactory: no intervention
Egypt	38 841	62 931	86 674	2.22	2.41	1.60	Too high: intervene to lower	Satisfactory: intervene to lower
Libyan Arab Jamahiriya	2 446	5 407	10 050	3.47	3.97	3.10	Satisfactory: no intervention	Too high: intervene to lower

Table A.18 *(continued)*

Major area, region or country	Mid-year population (thousands)			Average annual growth rate (percentage)			Governments' views and policies	
	1975	1995	2015	1990-1995	1975-1995	1995-2015	On population growth and type of intervention to modify growth	On immigration
Morocco	17 305	27 028	36 344	2.10	2.23	1.48	Too high: intervene to lower	Satisfactory: no intervention
Sudan	16 012	28 098	46 879	2.67	2.81	2.56	Too high: intervene to lower	Satisfactory: intervene to raise
Tunisia	5 611	8 896	11 917	1.92	2.30	1.46	Satisfactory: intervene to lower	Satisfactory: no intervention
Western Sahara	117	283	527	4.16	4.41	3.10	..	..
Southern Africa	28 997	47 396	71 279	2.31	2.46	2.04		
Botswana	759	1 487	2 488	3.06	3.36	2.57	Too high: intervene to lower	Satisfactory: no intervention
Lesotho	1 187	2 050	3 390	2.69	2.73	2.52	Too high: intervene to lower	Satisfactory: no intervention
Namibia	900	1 540	2 505	2.65	2.68	2.43	Too high: intervene to lower	Satisfactory: intervene to raise
South Africa	25 669	41 465	61 504	2.24	2.40	1.97	Too high: intervene to lower	Satisfactory: intervene to maintain
Swaziland	482	855	1 391	2.78	2.87	2.43	Too high: intervene to lower	Satisfactory: no intervention
Western Africa	118 138	210 663	364 321	3.02	2.89	2.74		
Benin	3 033	5 409	9 512	3.10	2.89	2.82	Satisfactory: no intervention	Satisfactory: no intervention
Burkina Faso	6 202	10 319	16 958	2.76	2.55	2.48	Too high: no intervention	Satisfactory: no intervention
Cape Verde	278	392	623	2.77	1.72	2.32	Too high: intervene to lower	Satisfactory: no intervention
Côte d'Ivoire	6 755	14 253	27 099	3.48	3.73	3.21	Satisfactory: intervene to raise	Too high: intervene to lower
Gambia	548	1 118	1 772	3.83	3.57	2.30	Too high: intervene to lower	Too high: intervene to lower
Ghana	9 831	17 453	30 254	3.00	2.87	2.75	Too high: intervene to lower	Satisfactory: no intervention
Guinea	4 149	6 700	11 798	3.04	2.40	2.83	Too high: intervene to lower	Satisfactory: no intervention
Guinea-Bissau	627	1 073	1 634	2.14	2.68	2.10	Satisfactory: no intervention	Satisfactory: no intervention
Liberia	1 609	3 039	5 575	3.32	3.18	3.03	Too high: intervene to lower	Satisfactory: intervene to maintain
Mali	6 169	10 795	19 179	3.17	2.80	2.87	Too high: intervene to lower	Satisfactory: intervene to maintain
Mauritania	1 371	2 274	3 663	2.54	2.53	2.38	Satisfactory: no intervention	Satisfactory: no intervention
Niger	4 771	9 151	17 096	3.37	3.26	3.12	Too high: no intervention	Satisfactory: no intervention
Nigeria	62 770	111 721	190 922	3.00	2.88	2.68	Too high: intervene to lower	Satisfactory: intervene to maintain
St. Helena	5	6	7	0.84	0.84	0.84	..	..
Senegal	4 806	8 312	13 759	2.52	2.74	2.52	Too high: intervene to lower	Satisfactory: no intervention
Sierra Leone	2 931	4 509	7 108	2.40	2.15	2.28	Too high: no intervention	Satisfactory: no intervention
Togo	2 285	4 138	7 360	3.18	2.97	2.88	Too high: no intervention	Satisfactory: no intervention
Asia	2 405 987	3 457 957	4 515 814	1.64	1.81	1.33		
Eastern Asia	1 097 252	1 424 155	1 659 593	1.04	1.30	0.76		
China	927 808	1 221 462	1 441 075	1.11	1.37	0.83	Satisfactory: intervene to lower	Satisfactory: intervene to maintain
Democratic People's Republic of Korea	16 562	23 917	30 514	1.88	1.84	1.22	Satisfactory: no intervention	Satisfactory: intervene to maintain
Hong Kong, China	4 396	5 865	6 039	0.55	1.44	0.15	..	..
Japan	111 524	125 095	125 946	0.25	0.57	0.03	Satisfactory: no intervention	Satisfactory: intervene to maintain
Macau	234	410	516	3.62	2.81	1.14	..	..
Mongolia	1 447	2 410	3 425	2.03	2.55	1.76	Satisfactory: intervene to maintain	Satisfactory: intervene to maintain
Republic of Korea	35 281	44 995	52 078	0.97	1.22	0.73	Satisfactory: intervene to lower	Satisfactory: intervene to lower
South-central Asia	885 983	1 381 160	1 954 244	2.10	2.22	1.74		
Afghanistan	15 378	20 141	37 511	5.83	1.35	3.11	Too high: no intervention	Satisfactory: intervene to maintain

Table A.18 *(continued)*

Major area, region or country	Mid-year population (thousands)			Average annual growth rate (percentage)			Governments' views and policies	
	1975	1995	2015	1990-1995	1975-1995	1995-2015	On population growth and type of intervention to modify growth	On immigration
Bangladesh	76 582	120 433	174 837	2.16	2.26	1.86	Too high: intervene to lower	Satisfactory: intervene to maintain
Bhutan	1 119	1 638	2 573	1.18	1.91	2.26	Too low: no intervention	Too high: intervene to lower
India	620 701	935 744	1 263 691	1.91	2.05	1.50	Too high: intervene to lower	Satisfactory: intervene to maintain
Iran (Islamic Republic of)	33 344	67 283	105 837	2.65	3.51	2.26	Too high: intervene to lower	Too high: intervene to lower
Kazakhstan	14 136	17 111	20 222	0.52	0.96	0.84	Satisfactory: intervene to maintain	Satisfactory: intervene to maintain
Kyrgyzstan	3 299	4 745	6 338	1.68	1.82	1.45	Satisfactory: intervene to maintain	Satisfactory: intervene to maintain
Maldives	137	254	454	3.31	3.08	2.90	Too high: intervene to lower	Satisfactory: intervene to lower
Nepal	13 006	21 918	34 535	2.59	2.61	2.27	Too high: intervene to lower	Too high: intervene to lower
Pakistan	74 734	140 497	236 254	2.83	3.16	2.60	Too high: intervene to lower	Satisfactory: no intervention
Sri Lanka	13 603	18 354	22 959	1.27	1.50	1.12	Too high: intervene to lower	Satisfactory: intervene to maintain
Tajikistan	3 442	6 101	9 898	2.86	2.86	2.42	Satisfactory: no intervention	Satisfactory: no intervention
Turkmenistan	2 520	4 099	5 895	2.28	2.43	1.82	Satisfactory: intervene to maintain	Satisfactory: intervene to maintain
Uzbekistan	13 981	22 843	33 241	2.24	2.45	1.88	Satisfactory: intervene to maintain	Satisfactory: intervene to maintain
South-eastern Asia	323 982	484 252	644 668	1.81	2.01	1.43		
Brunei Darussalam	161	285	382	2.06	2.87	1.46	Satisfactory: no intervention	Satisfactory: intervene to lower
Cambodia	7 098	10 251	16 286	2.96	1.84	2.31	Too high: intervene to lower	Satisfactory: intervene to maintain
East Timor	672	814	1 090	1.91	0.96	1.46	..	..
Indonesia	135 666	197 588	252 047	1.55	1.88	1.22	Too high: intervene to lower	Too high: intervene to lower
Lao People's Democratic Republic	3 024	4 882	8 050	3.00	2.39	2.50	Too low: intervene to raise	Satisfactory: intervene to maintain
Malaysia	12 258	20 140	27 970	2.37	2.48	1.64	Too high: intervene to lower	Too high: intervene to lower
Myanmar	30 441	46 527	66 538	2.14	2.12	1.79	Satisfactory: intervene to lower	Satisfactory: intervene to maintain
Philippines	43 010	67 581	94 241	2.12	2.26	1.66	Too high: intervene to lower	Satisfactory: intervene to lower
Singapore	2 263	2 848	3 221	1.03	1.15	0.62	Satisfactory: intervene to maintain	Satisfactory: intervene to raise
Thailand	41 359	58 791	69 351	1.12	1.76	0.83	Too high: intervene to lower	Satisfactory: intervene to lower
Viet Nam	48 030	74 545	105 493	2.23	2.20	1.74	Too high: intervene to lower	Satisfactory: no intervention
Western Asia	98 771	168 390	257 309	2.43	2.67	2.12		
Armenia	2 826	3 599	4 391	1.42	1.21	0.99	Satisfactory: intervene to maintain	Satisfactory: intervene to maintain
Azerbaijan	5 689	7 558	9 280	1.20	1.42	1.03	Satisfactory: intervene to maintain	Satisfactory: intervene to maintain
Bahrain	272	564	816	2.80	3.64	1.85	Satisfactory: no intervention	Satisfactory: no intervention
Cyprus	609	742	871	1.11	0.99	0.80	Too low: intervene to raise	Satisfactory: intervene to lower
Gaza Strip	390	793	1 195	4.80	3.55	2.05	..	..
Georgia	4 908	5 457	5 899	0.14	0.53	0.39	Satisfactory: intervene to maintain	Satisfactory: intervene to maintain
Iraq	11 020	20 449	34 998	2.46	3.09	2.69	Too low: intervene to raise	Satisfactory: intervene to maintain
Israel	3 455	5 629	7 159	3.78	2.44	1.20	Too low: intervene to raise	Too low: intervene to raise
Jordan	2 600	5 439	9 695	4.89	3.69	2.89	Too high: intervene to lower	Satisfactory: intervene to lower
Kuwait	1 007	1 547	2 481	-6.52	2.15	2.36	Satisfactory: intervene to maintain	Satisfactory: intervene to lower
Lebanon	2 767	3 009	3 961	3.27	0.42	1.38	Satisfactory: no intervention	Too high: intervene to lower
Oman	847	2 163	4 487	4.23	4.69	3.65	Too low: intervene to raise	Too high: intervene to lower
Qatar	171	551	746	2.53	5.84	1.52	Too low: intervene to raise	Satisfactory: intervene to maintain
Saudi Arabia	7 251	17 880	33 255	2.16	4.51	3.10	Too low: intervene to raise	Too high: intervene to lower

Table A.18 ***(continued)***

Major area, region or country	Mid-year population (thousands)			Average annual growth rate (percentage)			Governments' views and policies	
	1975	1995	2015	1990-1995	1975-1995	1995-2015	On population growth and type of intervention to modify growth	On immigration
Syrian Arab Republic	7 438	14 661	26 991	3.43	3.39	3.05	Satisfactory: no intervention	Satisfactory: intervene to maintain
Turkey	40 025	61 945	82 075	1.98	2.18	1.41	Too high: intervene to lower	Satisfactory: intervene to lower
United Arab Emirates	505	1 904	2 688	2.62	6.64	1.72	Too high: no intervention	Too high: intervene to lower
Yemen	6 991	14 501	26 319	4.97	3.65	2.98	Too high: intervene to lower	Too high: intervene to lower
Europe	676 389	726 999	726 474	0.15	0.36	-0.00		
Eastern Europe	285 708	308 709	303 240	-0.11	0.39	-0.09		
Belarus	9 367	10 141	9 979	-0.14	0.40	-0.08	Too low: intervene to raise	Satisfactory: intervene to maintain
Bulgaria	8 722	8 769	8 082	-0.50	0.03	-0.41	Too low: intervene to raise	Satisfactory: intervene to maintain
Czech Republic	9 997	10 296	10 490	-0.02	0.15	0.09	Satisfactory: intervene to maintain	Satisfactory: intervene to lower
Hungary	10 532	10 115	9 564	-0.49	-0.20	-0.28	Too low: intervene to raise	Satisfactory: intervene to lower
Poland	34 022	38 388	40 549	0.14	0.60	0.27	Satisfactory: no intervention	Satisfactory: intervene to maintain
Republic of Moldova	3 839	4 432	4 904	0.32	0.72	0.51	Satisfactory: intervene to maintain	Satisfactory: intervene to maintain
Romania	21 245	22 835	22 170	-0.32	0.36	-0.15	Too low: no intervention	Satisfactory: intervene to lower
Russian Federation	134 233	147 000	142 004	-0.12	0.45	-0.17	Satisfactory: no intervention	Too high: intervene to lower
Slovakia	4 736	5 353	5 819	0.36	0.61	0.42	Satisfactory: intervene to maintain	Satisfactory: intervene to lower
Ukraine	49 016	51 380	49 680	-0.10	0.24	-0.17	Too low: intervene to raise	Satisfactory: no intervention
Northern Europe	89 034	93 542	97 000	0.27	0.25	0.18		
Channel Islands	127	148	166	0.75	0.74	0.59	..	..
Denmark	5 060	5 181	5 140	0.16	0.12	-0.04	Satisfactory: no intervention	Satisfactory: intervene to maintain
Estonia	1 432	1 530	1 451	-0.58	0.33	-0.27	Satisfactory: no intervention	Too high: intervene to lower
Faeroe Islands	41	47	49	0.25	0.73	0.20	..	..
Finland	4 711	5 107	5 360	0.48	0.40	0.24	Satisfactory: no intervention	Satisfactory: intervene to lower
Iceland	218	269	317	1.06	1.04	0.83	Satisfactory: no intervention	Satisfactory: intervene to maintain
Ireland	3 177	3 553	3 842	0.28	0.56	0.39	Satisfactory: no intervention	Satisfactory: intervene to maintain
Isle of Man	60	74	93	1.45	1.07	1.15	..	..
Latvia	2 474	2 557	2 382	-0.87	0.17	-0.36	Too low: no intervention	Too high: intervene to lower
Lithuania	3 308	3 700	3 769	-0.06	0.56	0.09	Satisfactory: intervene to raise	Satisfactory: intervene to lower
Norway	4 007	4 337	4 611	0.45	0.40	0.31	Satisfactory: no intervention	Satisfactory: no intervention
Sweden	8 193	8 780	9 420	0.51	0.35	0.35	Satisfactory: no intervention	Satisfactory: intervene to maintain
United Kingdom	56 226	58 258	60 398	0.29	0.18	0.18	Satisfactory: no intervention	Too high: intervene to lower
Southern Europe	132 491	143 922	143 215	0.12	0.41	-0.02		
Albania	2 424	3 441	4 267	0.90	1.75	1.08	Satisfactory: intervene to maintain	Satisfactory: intervene to maintain
Andorra	25	68	124	5.50	4.97	3.02	Satisfactory: no intervention	Satisfactory: intervene to maintain
Bosnia and Herzegovina	3 747	3 459	4 462	-4.39	-0.40	1.27	Satisfactory: intervene to maintain	Satisfactory: no intervention
Croatia	4 263	4 495	4 330	-0.10	0.26	-0.19	Satisfactory: intervene to raise	Satisfactory: no intervention
Gibraltar	28	28	28	0.00	0.09	0.00	..	..
Greece	9 047	10 451	10 284	0.41	0.72	-0.08	Too low: intervene to raise	Too high: intervene to lower
Holy See	1	1	1	0.00	0.00	0.00	Satisfactory: no intervention	Satisfactory: intervene to maintain
Italy	55 441	57 187	54 905	0.06	0.16	-0.20	Satisfactory: no intervention	Satisfactory: intervene to maintain

Table A.18 ***(continued)***

Major area, region or country	Mid-year population (thousands)			Average annual growth rate (percentage)			Governments' views and policies	
	1975	1995	2015	1990-1995	1975-1995	1995-2015	On population growth and type of intervention to modify growth	On immigration
Malta	304	366	408	0.67	0.93	0.54	Satisfactory: no intervention	Satisfactory: no intervention
Portugal	9 093	9 823	9 768	-0.09	0.39	-0.03	Too low: no intervention	Satisfactory: intervene to lower
San Marino	19	25	32	1.50	1.37	1.19	Satisfactory: intervene to maintain	Too high: intervene to lower
Slovenia	1 742	1 946	1 892	0.29	0.55	-0.14	Satisfactory: intervene to maintain	Satisfactory: no intervention
Spain	35 596	39 621	39 002	0.18	0.54	-0.08	Satisfactory: no intervention	Satisfactory: intervene to lower
The former Yugoslav Republic of Macedonia	1 676	2 163	2 474	1.11	1.28	0.67	Too high: intervene to lower	Too high: intervene to lower
Yugoslavia	9 085	10 849	11 237	1.32	0.89	0.18	Satisfactory: intervene to maintain	Satisfactory: no intervention
Western Europe	169 156	180 826	183 019	0.55	0.33	0.06		
Austria	7 579	7 968	8 268	0.67	0.25	0.18	Satisfactory: intervene to maintain	Too high: intervene to lower
Belgium	9 796	10 113	10 352	0.32	0.16	0.12	Satisfactory: no intervention	Too high: intervene to lower
France	52 699	57 981	60 535	0.44	0.48	0.22	Satisfactory: intervene to raise	Too high: intervene to lower
Germany	78 679	81 591	79 331	0.55	0.18	-0.14	Satisfactory: no intervention	Too high: intervene to lower
Liechtenstein	23	31	39	1.41	1.45	1.18	Satisfactory: no intervention	Satisfactory: intervene to lower
Luxembourg	362	406	440	1.26	0.56	0.41	Satisfactory: intervene to maintain	Too high: intervene to lower
Monaco	25	32	39	1.20	1.18	1.08	Too low: intervene to raise	Satisfactory: intervene to lower
Netherlands	13 653	15 503	16 267	0.72	0.64	0.24	Satisfactory: no intervention	Too high: intervene to lower
Switzerland	6 339	7 202	7 747	1.05	0.64	0.36	Satisfactory: no intervention	Too high: intervene to lower
Latin America and the Caribbean	319 893	482 005	641 098	1.84	2.05	1.43		
Caribbean	27 226	35 796	44 974	1.31	1.37	1.14		
Anguilla	6	8	10	1.32	1.07	1.07	..	..
Antigua and Barbuda	59	66	76	0.59	0.54	0.74	Satisfactory: intervene to maintain	Satisfactory: no intervention
Aruba	62	70	83	0.91	0.60	0.87	..	..
Bahamas	190	276	349	1.51	1.88	1.18	Satisfactory: no intervention	Too high: intervene to lower
Barbados	246	262	292	0.35	0.32	0.55	Too high: intervene to lower	Satisfactory: intervene to lower
British Virgin Islands	11	19	28	2.88	2.71	2.08	..	..
Cayman Islands	14	31	50	3.50	3.91	2.44	..	..
Cuba	9 306	11 041	12 180	0.82	0.86	0.49	Satisfactory: no intervention	Satisfactory: intervene to maintain
Dominica	72	71	76	-0.13	-0.10	0.32	Too high: intervene to lower	Satisfactory: intervene to maintain
Dominican Republic	5 049	7 823	10 251	1.91	2.19	1.35	Too high: intervene to lower	Too high: no intervention
Grenada	92	92	103	0.31	0.03	0.58	Satisfactory: intervene to maintain	Satisfactory: no intervention
Guadeloupe	329	428	537	1.82	1.32	1.13	..	..
Haiti	4 920	7 180	10 805	2.03	1.89	2.04	Too high: intervene to lower	Satisfactory: no intervention
Jamaica	2 013	2 447	3 002	0.68	0.98	1.02	Too high: intervene to lower	Satisfactory: no intervention
Martinique	329	379	443	1.00	0.71	0.78	..	..
Montserrat	12	11	11	-0.34	-0.44	0.20	..	..
Netherlands Antilles	166	199	234	0.89	0.89	0.81	..	..
Puerto Rico	2 993	3 674	4 295	0.80	1.03	0.78	..	..
Saint Kitts and Nevis	45	41	43	-0.30	-0.46	0.22	Too high: intervene to lower	Satisfactory: intervene to maintain
Saint Lucia	108	142	180	1.35	1.37	1.19	Too high: intervene to lower	Satisfactory: intervene to lower
Saint Vincent and the Grenadines	93	112	134	0.88	0.93	0.91	Too high: intervene to lower	Satisfactory: no intervention

Table A.18 *(continued)*

Major area, region or country	Mid-year population (thousands)			Average annual growth rate (percentage)			Governments' views and policies	
	1975	1995	2015	1990-1995	1975-1995	1995-2015	On population growth and type of intervention to modify growth	On immigration
Trinidad and Tobago	1 012	1 306	1 645	1.10	1.28	1.15	Too high: intervene to lower	Satisfactory: intervene to maintain
Turks and Caicos Islands	6	14	24	3.85	3.87	2.64	..	..
United States Virgin Islands	95	105	122	0.59	0.53	0.74	..	..
Central America	78 247	126 419	175 684	2.23	2.40	1.65		
Belize	134	215	330	2.64	2.38	2.14	Too low: no intervention	Too high: intervene to lower
Costa Rica	1 968	3 424	4 903	2.41	2.77	1.80	Too high: intervene to lower	Too high: intervene to lower
El Salvador	4 085	5 768	8 437	2.18	1.72	1.90	Too high: intervene to lower	Satisfactory: no intervention
Guatemala	6 023	10 621	17 752	2.88	2.84	2.57	Satisfactory: no intervention	Satisfactory: no intervention
Honduras	3 017	5 654	9 044	2.95	3.14	2.35	Satisfactory: no intervention	Satisfactory: intervene to lower
Mexico	58 871	93 674	124 244	2.06	2.32	1.41	Too high: intervene to lower	Satisfactory: intervene to lower
Nicaragua	2 426	4 433	7 522	3.74	3.01	2.64	Too high: intervene to lower	Satisfactory: no intervention
Panama	1 723	2 631	3 451	1.86	2.12	1.36	Satisfactory: no intervention	Satisfactory: intervene to maintain
South America	214 420	319 790	420 440	1.74	2.00	1.37		
Argentina	26 049	34 587	42 660	1.22	1.42	1.05	Satisfactory: no intervention	Satisfactory: intervene to maintain
Bolivia	4 759	7 414	11 219	2.41	2.22	2.07	Satisfactory: no intervention	Satisfactory: no intervention
Brazil	108 032	161 790	210 420	1.72	2.02	1.31	Satisfactory: no intervention	Satisfactory: intervene to maintain
Chile	10 334	14 262	18 132	1.62	1.61	1.20	Satisfactory: no intervention	Satisfactory: no intervention
Colombia	23 776	35 101	45 309	1.66	1.95	1.28	Satisfactory: no intervention	Satisfactory: no intervention
Ecuador	6 907	11 460	15 936	2.20	2.53	1.65	Satisfactory: no intervention	Satisfactory: no intervention
Falkland Islands (Malvinas)	2	2	3	0.58	0.54	0.74	..	..
French Guiana	57	147	270	4.53	4.70	3.04	..	..
Guyana	734	835	1 042	0.94	0.64	1.11	Satisfactory: no intervention	Satisfactory: intervene to raise
Paraguay	2 682	4 960	7 669	2.78	3.07	2.18	Satisfactory: no intervention	Too low: intervene to raise
Peru	15 161	23 780	32 831	1.93	2.25	1.61	Too high: intervene to lower	Satisfactory: no intervention
Suriname	364	423	536	1.10	0.74	1.18	Satisfactory: no intervention	Too high: no intervention
Uruguay	2 829	3 186	3 535	0.58	0.59	0.52	Too low: intervene to raise	Too low: intervene to raise
Venezuela	12 734	21 844	30 877	2.27	2.70	1.73	Satisfactory: no intervention	Satisfactory: no intervention
Northern America	239 289	292 841	344 695	1.05	1.01	0.82		
Bermuda	53	63	71	0.71	0.88	0.55	..	..
Canada	23 209	29 463	35 425	1.17	1.19	0.92	Satisfactory: no intervention	Satisfactory: intervene to raise
Greenland	50	58	65	0.71	0.79	0.55	..	..
Saint Pierre and Miquelon	6	6	7	0.71	0.46	0.55	..	..
United States of America	215 972	263 250	309 128	1.04	0.99	0.80	Satisfactory: no intervention	Satisfactory: intervene to maintain
Oceania	21 438	28 549	36 924	1.54	1.43	1.29		
Australia-New Zealand	16 984	21 663	26 618	1.35	1.22	1.03		
Australia	13 900	18 088	22 466	1.37	1.32	1.08	Satisfactory: no intervention	Satisfactory: intervene to maintain
New Zealand	3 083	3 575	4 153	1.24	0.74	0.75	Satisfactory: no intervention	Too low: intervene to raise
Melanesia	3 730	5 813	8 717	2.22	2.22	2.03		
Fiji	576	784	1 046	1.52	1.54	1.44	Satisfactory: intervene to maintain	Satisfactory: intervene to maintain

Table A.18 ***(continued)***

Major area, region or country	Mid-year population (thousands)			Average annual growth rate (percentage)			Governments' views and policies	
	1975	1995	2015	1990-1995	1975-1995	1995-2015	On population growth and type of intervention to modify growth	On immigration
New Caledonia	133	181	233	1.53	1.53	1.26	..	..
Papua New Guinea	2 729	4 302	6 486	2.27	2.28	2.05	Too high: intervene to lower	Satisfactory: no intervention
Solomon Islands	190	378	678	3.32	3.43	2.92	Too high: intervene to lower	Satisfactory: intervene to maintain
Vanuatu	102	169	275	2.49	2.53	2.43	Satisfactory: no intervention	Satisfactory: no intervention
Micronesia	284	482	751	2.34	2.65	2.22		
Guam	95	150	198	2.26	2.26	1.39	..	..
Kiribati	55	79	120	1.75	1.77	2.10	Too high: intervene to lower	Satisfactory: intervene to maintain
Marshall Islands	30	54	99	2.94	2.96	3.07	Too high: intervene to lower	Satisfactory: intervene to lower
Micronesia (Federated States of)	71	124	223	2.77	2.79	2.92	Too high: intervene to lower	Too high: intervene to lower
Nauru	6	11	19	2.57	2.58	2.76	Too low: intervene to raise	Satisfactory: intervene to maintain
Northern Mariana Islands	15	47	64	1.77	5.79	1.48	..	..
Palau	11	17	28	2.25	2.27	2.51	..	..
Polynesia	441	591	838	1.51	1.46	1.75		
American Samoa	30	54	91	3.04	3.05	2.57	..	..
Cook Islands	19	19	25	0.93	0.02	1.36	..	..
French Polynesia	130	220	304	2.15	2.63	1.63	..	..
Niue	4	2	2	-2.15	-3.44	-0.44	..	..
Pitcairn	–	–	–	0.00	-0.29	0.00	..	..
Samoa	153	171	261	1.07	0.57	2.10	Too high: intervene to lower	Too high: intervene to maintain
Tokelau	2	2	2	0.00	0.08	0.00	..	..
Tonga	88	98	120	0.36	0.53	1.03	Too low: no intervention	Satisfactory: intervene to maintain
Tuvalu	6	10	13	1.42	2.10	1.64	Too high: intervene to lower	Satisfactory: intervene to maintain
Wallis and Futuna Islands	9	14	19	1.10	2.31	1.45	..	..

Sources: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16); and *Global Population Policy Database, 1995* (United Nations publication, Sales No. E.95.XIII.9).

[a] Comprising all regions of Europe and Northern America, Australia-New Zealand and Japan.

[b] Comprising all regions of Africa, Asia (excluding Japan) and Latin America, and regions of Melanesia, Micronesia and Polynesia.

Table A.19. Trends in urban and rural population size and growth, major areas, regions and countries, 1975-2015

Major area, region or country	Urban population (thousands)			Rural population (thousands)			Percentage urban			Annual growth rate (percentage)					
										Urban population			Rural population		
	1975	1995	2015	1975	1995	2015	1975	1995	2015	1990-1995	1975-1995	1995-2015	1990-1995	1975-1995	1995-2015
World total	1 538 346	2 584 454	4 143 347	2 538 638	3 131 972	3 325 578	37.7	45.2	55.5	2.53	2.59	2.36	0.81	1.05	0.30
More developed regions [a]	729 285	873 970	990 622	314 901	292 628	233 111	69.8	74.9	81.0	0.75	0.90	0.63	-0.59	-0.37	-1.14
Less developed regions [b]	809 062	1 710 483	3 152 725	2 223 737	2 839 344	3 092 466	26.7	37.6	50.5	3.51	3.74	3.06	0.96	1.22	0.43
Least developed countries	48 747	128 915	339 234	293 762	446 492	606 265	14.2	22.4	35.9	5.18	4.86	4.84	2.19	2.09	1.53
Africa	104 123	250 276	567 926	309 865	477 798	635 993	25.2	34.4	47.2	4.38	4.38	4.10	2.03	2.17	1.43
Eastern Africa	15 384	49 335	132 859	109 754	177 773	256 832	12.3	21.7	34.1	5.44	5.83	4.95	2.33	2.41	1.84
Burundi	118	480	1 645	3 562	5 913	9 098	3.2	7.5	15.3	6.62	7.00	6.15	2.73	2.53	2.16
Comoros	67	201	576	249	452	682	21.2	30.7	45.8	5.68	5.48	5.27	2.86	2.99	2.05
Djibouti	140	478	779	65	99	108	68.5	82.8	87.8	2.72	6.13	2.44	-0.13	2.14	0.42
Eritrea	256	607	1 614	1 833	2 925	4 164	12.2	17.2	27.9	4.40	4.32	4.89	2.39	2.34	1.77
Ethiopia	3 061	7 371	22 232	29 159	47 682	75 689	9.5	13.4	22.7	4.74	4.39	5.52	2.73	2.46	2.31
Kenya	1 775	7 817	21 787	11 966	20 444	28 074	12.9	27.7	43.7	6.80	7.41	5.12	2.49	2.68	1.59
Madagascar	1 253	4 003	11 457	6 534	10 760	15 403	16.1	27.1	42.7	5.82	5.81	5.26	2.33	2.49	1.79
Malawi	402	1 505	4 237	4 842	9 623	13 195	7.7	13.5	24.3	6.16	6.61	5.17	3.05	3.43	1.58
Mauritius	388	453	691	505	663	676	43.4	40.6	50.5	1.16	0.79	2.11	1.07	1.37	0.10
Mozambique	905	5 481	15 114	9 593	10 523	12 780	8.6	34.2	54.2	7.35	9.00	5.07	0.25	0.46	0.97
Réunion	237	442	647	246	210	178	49.1	67.8	78.5	2.74	3.11	1.90	-0.74	-0.77	-0.85
Rwanda	175	483	1 356	4 209	7 469	11 580	4.0	6.1	10.5	4.23	5.07	5.16	2.49	2.87	2.19
Seychelles	20	40	61	40	33	27	33.3	54.5	68.9	2.92	3.54	2.09	-0.88	-0.85	-0.97
Somalia	1 164	2 382	6 294	4 308	6 869	10 320	21.3	25.7	37.9	2.51	3.58	4.86	0.87	2.33	2.04
Uganda	933	2 670	8 048	10 250	18 626	29 030	8.3	12.5	21.7	5.75	5.26	5.52	3.11	2.99	2.22
United Republic of Tanzania	1 602	7 230	20 164	14 298	22 455	29 851	10.1	24.4	40.3	6.12	7.53	5.13	2.04	2.26	1.42
Zambia	1 686	4 071	8 132	3 155	5 385	7 243	34.8	43.1	52.9	3.47	4.41	3.46	2.60	2.67	1.48
Zimbabwe	1 202	3 619	8 025	4 942	7 642	8 733	19.6	32.1	47.9	4.95	5.51	3.98	1.53	2.18	0.67
Middle Africa	12 072	27 350	68 171	33 292	54 976	77 962	26.6	33.2	46.7	4.46	4.09	4.57	2.46	2.51	1.75
Angola	1 087	3 569	9 812	5 023	7 504	10 582	17.8	32.2	48.1	6.32	5.94	5.06	2.59	2.01	1.72
Cameroon	2 022	5 938	13 962	5 503	7 295	9 027	26.9	44.9	60.7	4.92	5.39	4.27	1.17	1.41	1.07
Central African Republic	693	1 301	2 690	1 364	2 014	2 511	33.7	39.3	51.7	3.42	3.15	3.63	1.91	1.95	1.10
Chad	627	1 362	3 202	3 403	4 998	7 253	15.6	21.4	30.6	3.60	3.88	4.27	2.48	1.92	1.86
Congo	504	1 523	3 169	943	1 067	1 225	34.8	58.8	72.1	4.87	5.53	3.66	0.56	0.62	0.69
Democratic Republic of the Congo (formerly Zaire)	6 860	12 766	33 438	16 391	31 136	46 269	29.5	29.1	42.0	3.90	3.11	4.81	2.90	3.21	1.98
Equatorial Guinea	61	169	404	164	231	241	27.1	42.2	62.6	5.86	5.09	4.37	0.44	1.71	0.21
Gabon	195	660	1 380	442	660	780	30.6	50.0	63.9	4.65	6.10	3.68	1.16	2.00	0.83
Sao Tome and Principe	23	62	115	58	71	73	27.9	46.7	61.2	4.16	5.03	3.11	0.63	0.96	0.18
Northern Africa	37 232	73 658	133 306	59 118	86 924	99 190	38.6	45.9	57.3	3.22	3.41	2.97	1.58	1.93	0.66
Algeria	6 460	15 591	27 723	9 558	12 348	12 383	40.3	55.8	69.1	3.79	4.41	2.88	0.51	1.28	0.01
Egypt	16 877	28 170	48 038	21 964	34 761	38 635	43.5	44.8	55.4	2.59	2.56	2.67	1.93	2.30	0.53
Libyan Arab Jamahiriya	1 491	4 649	9 188	955	758	862	61.0	86.0	91.4	4.33	5.69	3.41	-1.11	-1.15	0.64
Morocco	6 520	13 071	21 805	10 785	13 957	14 539	37.7	48.4	60.0	3.06	3.48	2.56	1.24	1.29	0.20

Table A.19 *(continued)*

Major area, region or country	Urban population (thousands)			Rural population (thousands)			Percentage urban			Annual growth rate (percentage)					
										Urban population			Rural population		
	1975	1995	2015	1975	1995	2015	1975	1995	2015	1990-1995	1975-1995	1995-2015	1990-1995	1975-1995	1995-2015
Sudan	3 033	6 915	17 997	12 979	21 183	28 882	18.9	24.6	38.4	4.42	4.12	4.78	2.13	2.45	1.55
Tunisia	2 797	5 093	8 177	2 814	3 803	3 740	49.8	57.2	68.6	2.75	3.00	2.37	0.86	1.51	-0.08
Western Sahara	54	170	377	64	114	150	45.8	59.9	71.5	5.34	5.75	3.99	2.52	2.90	1.40
Southern Africa	12 786	22 807	43 231	16 211	24 589	28 048	44.1	48.1	60.7	3.12	2.89	3.20	1.58	2.08	0.66
Botswana	91	418	1 192	668	1 069	1 296	12.0	28.1	47.9	6.95	7.63	5.24	1.72	2.35	0.96
Lesotho	128	473	1 333	1 059	1 577	2 057	10.8	23.1	39.3	6.17	6.53	5.18	1.76	1.99	1.33
Namibia	186	576	1 428	715	963	1 077	20.6	37.4	57.0	5.85	5.66	4.54	0.95	1.49	0.56
South Africa	12 314	21 073	38 593	13 355	20 391	22 911	48.0	50.8	62.7	2.89	2.69	3.03	1.60	2.12	0.58
Swaziland	67	267	685	414	588	706	14.0	31.2	49.2	6.15	6.88	4.71	1.42	1.76	0.91
Western Africa	26 648	77 126	190 359	91 490	133 537	173 961	22.6	36.6	52.3	5.24	5.31	4.52	1.84	1.89	1.32
Benin	620	1 691	4 187	2 413	3 718	5 326	20.4	31.3	44.0	4.57	5.01	4.53	2.46	2.16	1.80
Burkina Faso	394	2 809	10 208	5 808	7 510	6 751	6.3	27.2	60.2	11.20	9.83	6.45	0.34	1.28	-0.53
Cape Verde	60	213	466	218	179	156	21.4	54.3	74.9	6.92	6.37	3.92	-1.26	-1.00	-0.68
Côte d'Ivoire	2 168	6 211	15 613	4 587	8 042	11 487	32.1	43.6	57.6	4.98	5.26	4.61	2.40	2.81	1.78
Gambia	91	286	721	457	833	1 050	16.6	25.5	40.7	6.24	5.73	4.63	3.07	3.00	1.16
Ghana	2 955	6 333	15 265	6 876	11 119	14 988	30.1	36.3	50.5	4.30	3.81	4.40	2.30	2.40	1.49
Guinea	676	1 981	5 382	3 473	4 718	6 417	16.3	29.6	45.6	5.78	5.38	5.00	1.99	1.53	1.54
Guinea-Bissau	100	238	598	527	835	1 036	15.9	22.2	36.6	4.36	4.33	4.60	1.55	2.30	1.08
Liberia	488	1 366	3 239	1 121	1 673	2 336	30.3	45.0	58.1	4.63	5.14	4.32	2.30	2.00	1.67
Mali	1 000	2 909	8 074	5 169	7 886	11 105	16.2	27.0	42.1	5.66	5.34	5.10	2.33	2.11	1.71
Mauritania	278	1 224	2 498	1 093	1 050	1 166	20.3	53.8	68.2	5.35	7.40	3.57	-0.29	-0.20	0.52
Niger	507	1 558	4 903	4 263	7 593	12 193	10.6	17.0	28.7	5.61	5.61	5.73	2.94	2.89	2.37
Nigeria	14 676	43 884	104 606	48 094	67 837	86 316	23.4	39.3	54.8	5.22	5.48	4.34	1.69	1.72	1.20
St. Helena	1	2	3	4	4	4	20.0	26.9	42.6	3.08	2.33	3.13	0.07	0.39	-0.37
Senegal	1 643	3 512	7 622	3 163	4 800	6 137	34.2	42.3	55.4	3.70	3.80	3.87	1.70	2.08	1.23
Sierra Leone	620	1 632	3 693	2 311	2 877	3 415	21.1	36.2	52.0	4.76	4.84	4.08	1.18	1.09	0.86
Togo	373	1 276	3 282	1 912	2 862	4 078	16.3	30.8	44.6	4.78	6.15	4.72	2.50	2.02	1.77
Asia	592 282	1 197 970	2 158 556	1 813 705	2 259 987	2 357 257	24.6	34.6	47.8	3.33	3.52	2.94	0.79	1.10	0.21
Eastern Asia	275 635	525 281	858 229	821 616	898 873	801 363	25.1	36.9	51.7	3.11	3.22	2.45	-0.07	0.45	-0.57
China	160 047	369 492	676 441	767 761	851 970	764 635	17.3	30.3	46.9	3.99	4.18	3.02	-0.02	0.52	-0.54
Democratic People's Republic of Korea	9 356	14 650	21 493	7 205	9 267	9 021	56.5	61.3	70.4	2.35	2.24	1.92	1.15	1.26	-0.13
Hong Kong, China	3 943	5 574	5 849	453	291	190	89.7	95.0	96.9	0.75	1.73	0.24	-2.80	-2.21	-2.15
Japan	84 409	97 120	103 272	27 115	27 975	22 674	75.7	77.6	82.0	0.37	0.70	0.31	-0.17	0.16	-1.05
Macau	229	406	511	5	5	4	97.7	98.8	99.2	3.65	2.86	1.16	1.30	-0.57	-0.46
Mongolia	704	1 468	2 465	743	942	960	48.7	60.9	72.0	3.03	3.67	2.59	0.57	1.18	0.10
Republic of Korea	16 947	36 572	48 198	18 334	8 424	3 880	48.0	81.3	92.5	2.89	3.85	1.38	-5.72	-3.89	-3.88
South-central Asia	196 652	397 775	789 048	689 331	983 386	1 165 196	22.2	28.8	40.4	3.26	3.52	3.42	1.65	1.78	0.85
Afghanistan	2 040	4 026	11 989	13 338	16 114	25 522	13.3	20.0	32.0	7.66	3.40	5.46	5.40	0.95	2.30
Bangladesh	7 108	22 034	56 034	69 474	98 399	118 803	9.3	18.3	32.0	5.26	5.66	4.67	1.52	1.74	0.94

Table A.19 *(continued)*

Major area, region or country	Urban population (thousands)			Rural population (thousands)			Percentage urban			Annual growth rate (percentage)					
										Urban population			Rural population		
	1975	1995	2015	1975	1995	2015	1975	1995	2015	1990-1995	1975-1995	1995-2615	1990-1995	1975-1995	1995-2015
Bhutan	39	105	350	1 080	1 533	2 222	3.5	6.4	13.6	4.81	5.00	6.03	0.95	1.75	1.86
India	132 272	250 681	470 624	488 429	685 063	793 067	21.3	26.8	37.2	2.87	3.20	3.15	1.57	1.69	0.73
Iran (Islamic Republic of)	15 278	39 716	74 171	18 066	27 567	31 666	45.8	59.0	70.1	3.61	4.78	3.12	1.34	2.11	0.69
Kazakhstan	7 374	10 218	14 146	6 762	6 893	6 076	52.2	59.7	70.0	1.24	1.63	1.63	-0.49	0.10	-0.63
Kyrgyzstan	1 250	1 847	3 163	2 049	2 897	3 175	37.9	38.9	49.9	2.07	1.95	2.69	1.44	1.73	0.46
Maldives	25	68	172	113	186	282	18.0	26.8	37.8	3.97	5.06	4.62	3.07	2.52	2.08
Nepal	649	2 996	9 215	12 357	18 922	25 320	5.0	13.7	26.7	7.07	7.65	5.62	1.97	2.13	1.46
Pakistan	19 733	48 742	116 585	55 002	91 755	119 669	26.4	34.7	49.3	4.44	4.52	4.36	2.03	2.56	1.33
Sri Lanka	2 998	4 108	7 942	10 605	14 245	15 017	22.0	22.4	34.6	2.20	1.57	3.30	1.01	1.48	0.26
Tajikistan	1 223	1 964	4 158	2 219	4 137	5 740	35.5	32.2	42.0	2.86	2.37	3.75	2.86	3.11	1.64
Turkmenistan	1 198	1 839	3 198	1 322	2 259	2 697	47.6	44.9	54.2	2.28	2.14	2.76	2.28	2.68	0.89
Uzbekistan	5 465	9 430	17 303	8 516	13 413	15 937	39.1	41.3	52.1	2.59	2.73	3.04	2.00	2.27	0.86
South-eastern Asia	72 213	163 130	312 793	251 768	321 122	331 876	22.3	33.7	48.5	3.97	4.07	3.25	0.80	1.22	0.16
Brunei Darussalam	100	165	257	61	120	125	62.0	57.8	67.3	2.09	2.52	2.22	2.03	3.39	0.19
Cambodia	731	2 123	5 784	6 367	8 128	10 502	10.3	20.7	35.5	6.23	5.33	5.01	2.18	1.22	1.28
East Timor	60	61	110	612	753	980	8.9	7.5	10.1	1.03	0.09	2.94	1.98	1.04	1.32
Indonesia	26 259	69 992	135 562	109 408	127 596	116 485	19.4	35.4	53.8	4.49	4.90	3.31	0.11	0.77	-0.46
Lao People's Democratic Republic	344	1 060	2 942	2 680	3 822	5 108	11.4	21.7	36.5	6.08	5.63	5.10	2.22	1.77	1.45
Malaysia	4 616	10 814	18 874	7 642	9 326	9 096	37.7	53.7	67.5	3.88	4.26	2.78	0.75	1.00	-0.13
Myanmar	7 282	12 188	26 193	23 159	34 340	40 345	23.9	26.2	39.4	3.27	2.57	3.83	1.75	1.97	0.81
Philippines	15 294	36 614	65 379	27 715	30 967	28 861	35.6	54.2	69.4	4.21	4.36	2.90	-0.10	0.55	-0.35
Singapore	2 263	2 848	3 221	0	0	0	100.0	100.0	100.0	1.03	1.15	0.62	0.00	1.26	1.13
Thailand	6 244	11 787	21 619	35 115	47 004	47 732	15.1	20.0	31.2	2.49	3.18	3.03	0.79	1.46	0.08
Viet Nam	9 021	15 479	32 853	39 009	59 066	72 641	18.8	20.8	31.1	3.10	2.70	3.76	2.01	2.07	1.03
Western Asia	47 781	111 783	198 486	50 990	56 607	58 823	48.4	66.4	77.1	3.71	4.25	2.87	0.13	0.52	0.19
Armenia	1 780	2 473	3 350	1 046	1 126	1 041	63.0	68.7	76.3	1.79	1.64	1.52	0.64	0.37	-0.39
Azerbaijan	2 930	4 216	6 102	2 759	3 342	3 178	51.5	55.8	65.8	1.69	1.82	1.85	0.60	0.96	-0.25
Bahrain	215	509	776	56	55	40	79.2	90.3	95.1	3.42	4.30	2.11	-2.19	-0.16	-1.58
Cyprus	264	401	572	345	341	299	43.4	54.1	65.7	2.12	2.09	1.77	-0.02	-0.06	-0.66
Gaza Strip	339	749	1 148	51	44	48	87.0	94.5	96.0	4.98	3.96	2.13	2.06	-0.71	0.40
Georgia	2 432	3 190	4 090	2 476	2 266	1 809	49.5	58.5	69.3	0.99	1.36	1.24	-0.99	-0.44	-1.13
Iraq	6 765	15 258	28 929	4 254	5 191	6 070	61.4	74.6	82.7	3.22	4.07	3.20	0.39	1.00	0.78
Israel	2 994	5 098	6 618	461	531	541	86.6	90.6	92.4	3.85	2.66	1.30	3.13	0.70	0.10
Jordan	1 438	3 887	7 844	1 162	1 552	1 851	55.3	71.5	80.9	5.89	4.97	3.51	2.59	1.45	0.88
Kuwait	844	1 501	2 439	163	46	42	83.8	97.0	98.3	-6.28	2.88	2.43	-13.00	-6.28	-0.49
Lebanon	1 849	2 622	3 675	918	386	286	66.8	87.2	92.8	4.05	1.75	1.69	-1.38	-4.33	-1.50
Oman	53	285	1 125	794	1 878	3 362	6.3	13.2	25.1	7.83	8.40	6.87	3.74	4.31	2.91
Qatar	142	503	706	29	47	41	82.9	91.4	94.6	2.86	6.33	1.69	-0.73	2.42	-0.76
Saudi Arabia	4 257	14 339	28 599	2 995	3 540	4 656	58.7	80.2	86.0	2.90	6.07	3.45	-0.57	0.84	1.37

Table A.19 *(continued)*

Major area, region or country	Urban population (thousands)			Rural population (thousands)			Percentage urban			Annual growth rate (percentage)					
										Urban population			Rural population		
	1975	1995	2015	1975	1995	2015	1975	1995	2015	1990-1995	1975-1995	1995-2015	1990-1995	1975-1995	1995-2015
Syrian Arab Republic	3 352	7 676	17 241	4 086	6 985	9 749	45.1	52.4	63.9	4.28	4.14	4.05	2.55	2.68	1.67
Turkey	16 651	42 598	69 383	23 375	19 347	12 691	41.6	68.8	84.5	4.40	4.70	2.44	-2.50	-0.95	-2.11
United Arab Emirates	330	1 600	2 411	175	304	277	65.4	84.0	89.7	3.36	7.89	2.05	-0.88	2.77	-0.46
Yemen	1 147	4 877	13 477	5 844	9 624	12 842	16.4	33.6	51.2	8.00	7.24	5.08	3.59	2.49	1.44
Europe	453 668	535 052	581 866	222 721	191 947	144 608	67.1	73.6	80.1	0.57	0.82	0.42	-1.00	-0.74	-1.42
Eastern Europe	171 030	217 470	238 360	114 678	91 238	64 880	59.9	70.4	78.6	0.55	1.20	0.46	-1.59	-1.14	-1.70
Belarus	4 714	7 215	8 130	4 653	2 926	1 848	50.3	71.2	81.5	1.11	2.13	0.60	-2.92	-2.32	-2.30
Bulgaria	5 017	6 201	6 450	3 705	2 568	1 632	57.5	70.7	79.8	0.36	1.06	0.20	-2.44	-1.83	-2.27
Czech Republic	5 780	6 736	7 520	4 217	3 561	2 969	57.8	65.4	71.7	0.13	0.76	0.55	-0.29	-0.85	-0.91
Hungary	5 560	6 541	7 135	4 972	3 573	2 429	52.8	64.7	74.6	0.34	0.81	0.43	-1.92	-1.65	-1.93
Poland	18 850	24 853	30 114	15 172	13 535	10 435	55.4	64.7	74.3	0.86	1.38	0.96	-1.11	-0.57	-1.30
Republic of Moldova	1 376	2 293	3 220	2 463	2 139	1 685	35.8	51.7	65.6	1.92	2.55	1.70	-1.26	-0.70	-1.20
Romania	9 809	12 650	14 611	11 436	10 185	7 559	46.2	55.4	65.9	0.46	1.27	0.72	-1.25	-0.58	-1.49
Russian Federation	89 168	111 736	117 823	45 064	35 264	24 181	66.4	76.0	83.0	0.41	1.13	0.27	-1.74	-1.23	-1.89
Slovakia	2 191	3 146	4 019	2 545	2 207	1 800	46.3	58.8	69.1	1.16	1.81	1.22	-0.72	-0.71	-1.02
Ukraine	28 564	36 099	39 338	20 452	15 281	10 342	58.3	70.3	79.2	0.69	1.17	0.43	-1.86	-1.46	-1.95
Northern Europe	72 697	78 281	84 826	16 337	15 261	12 173	81.7	83.7	87.5	0.42	0.37	0.40	-0.51	-0.34	-1.13
Channel Islands	43	44	64	85	104	102	33.5	29.5	38.8	0.75	0.10	1.97	0.75	1.04	-0.11
Denmark	4 140	4 414	4 536	920	766	604	81.8	85.2	88.3	0.26	0.32	0.14	-0.43	-0.91	-1.19
Estonia	968	1 118	1 159	464	412	292	67.6	73.1	79.8	-0.22	0.72	0.18	-1.51	-0.59	-1.71
Faeroe Islands	11	16	24	30	32	26	27.9	32.9	48.0	1.74	1.54	2.09	-0.44	0.37	-1.08
Finland	2 745	3 225	3 852	1 966	1 882	1 508	58.3	63.2	71.9	1.03	0.81	0.89	-0.44	-0.22	-1.11
Iceland	189	246	299	29	23	18	86.6	91.6	94.2	1.28	1.32	0.97	-1.13	-1.26	-1.04
Ireland	1 704	2 043	2 500	1 473	1 510	1 342	53.6	57.5	65.1	0.49	0.91	1.01	0.00	0.12	-0.59
Isle of Man	31	56	76	28	18	17	52.4	75.3	81.8	1.83	2.88	1.56	0.33	-2.21	-0.37
Latvia	1 618	1 863	1 906	855	694	475	65.4	72.8	80.0	-0.42	0.70	0.11	-2.03	-1.04	-1.89
Lithuania	1 842	2 667	3 061	1 466	1 033	709	55.7	72.1	81.2	0.88	1.85	0.69	-2.29	-1.75	-1.89
Norway	2 732	3 174	3 635	1 275	1 164	976	68.2	73.2	78.8	0.67	0.75	0.68	-0.16	-0.46	-0.88
Sweden	6 778	7 296	8 080	1 415	1 484	1 340	82.7	83.1	85.8	0.51	0.37	0.51	0.51	0.24	-0.51
United Kingdom	49 896	52 119	55 634	6 330	6 139	4 764	88.7	89.5	92.1	0.38	0.22	0.33	-0.44	-0.15	-1.27
Southern Europe	78 362	93 669	103 493	54 129	50 253	39 722	59.1	65.1	72.3	0.52	0.89	0.50	-0.62	-0.37	-1.18
Albania	794	1 285	2 118	1 630	2 156	2 149	32.8	37.3	49.6	1.78	2.40	2.50	0.40	1.40	-0.02
Andorra	17	42	85	8	25	40	69.4	62.5	68.2	5.50	4.44	3.46	5.50	5.99	2.20
Bosnia and Herzegovina	1 172	1 695	2 838	2 575	1 764	1 624	31.3	49.0	63.6	-2.50	1.84	2.58	-6.06	-1.89	-0.41
Croatia	1 924	2 896	3 349	2 339	1 599	981	45.1	64.4	77.3	1.39	2.04	0.73	-2.55	-1.90	-2.44
Gibraltar	28	28	28	0	0	0	100.0	100.0	100.0	0.00	0.09	0.00	0.00	1.02	1.00
Greece	5 003	6 817	7 725	4 043	3 634	2 559	55.3	65.2	75.1	1.22	1.55	0.63	-1.02	-0.53	-1.75
Holy See	1	1	1	0	0	0	100.0	100.0	100.0	0.00	0.00	0.00	0.00	1.00	1.00
Italy	36 394	38 101	39 378	19 047	19 086	15 527	65.6	66.6	71.7	0.03	0.23	0.16	0.12	0.01	-1.03

Table A.19 *(continued)*

Major area, region or country	Urban population (thousands)			Rural population (thousands)			Percentage urban			Annual growth rate (percentage)					
										Urban population			Rural population		
	1975	1995	2015	1975	1995	2015	1975	1995	2015	1990-1995	1975-1995	1995-2015	1990-1995	1975-1995	1995-2015
Malta	245	327	380	60	39	28	80.4	89.3	93.1	1.05	1.45	0.75	-2.25	-2.10	-1.62
Portugal	2 515	3 496	4 689	6 578	6 327	5 080	27.7	35.6	48.0	1.14	1.65	1.47	-0.74	-0.19	-1.10
San Marino	14	24	31	5	1	1	71.7	94.2	97.4	2.07	2.74	1.35	-6.07	-6.59	-2.75
Slovenia	738	1 236	1 423	1 004	709	468	42.4	63.5	75.2	1.78	2.58	0.70	-2.07	-1.74	-2.07
Spain	24 765	30 292	31 982	10 831	9 329	7 019	69.6	76.5	82.0	0.47	1.01	0.27	-0.74	-0.75	-1.42
The former Yugoslav Republic of Macedonia	847	1 294	1 722	828	868	752	50.6	59.9	69.6	1.81	2.12	1.43	0.10	0.24	-0.72
Yugoslavia	3 905	6 134	7 744	5 181	4 715	3 493	43.0	56.5	68.9	2.58	2.26	1.17	-0.20	-0.47	-1.50
Western Europe	131 579	145 632	155 186	37 577	35 194	27 833	77.8	80.5	84.8	0.72	0.51	0.32	-0.16	-0.33	-1.17
Austria	4 034	4 424	5 168	3 545	3 544	3 099	53.2	55.5	62.5	0.72	0.46	0.78	0.60	-0.00	-0.67
Belgium	9 298	9 809	10 153	498	304	199	94.9	97.0	98.1	0.42	0.27	0.17	-2.50	-2.47	-2.12
France	38 481	42 203	47 366	14 218	15 778	13 169	73.0	72.8	78.2	0.47	0.46	0.58	0.36	0.52	-0.90
Germany	63 866	70 616	71 798	14 814	10 974	7 533	81.2	86.5	90.5	0.84	0.50	0.08	-1.22	-1.50	-1.88
Liechtenstein	5	7	13	18	24	26	20.0	21.4	33.6	2.54	1.79	3.45	1.11	1.36	0.34
Luxembourg	267	361	414	95	44	25	73.7	89.1	94.3	1.89	1.51	0.69	-3.28	-3.83	-2.80
Monaco	25	32	39	0	0	0	100.0	100.0	100.0	1.20	1.18	1.08	0.00	1.27	1.24
Netherlands	12 070	13 801	14 882	1 584	1 702	1 385	88.4	89.0	91.5	0.80	0.67	0.38	0.15	0.36	-1.03
Switzerland	3 534	4 379	5 352	2 805	2 823	2 396	55.7	60.8	69.1	1.47	1.07	1.00	0.42	0.03	-0.82
Latin America and the Caribbean	196 172	357 689	526 074	123 720	124 316	115 024	61.3	74.2	82.1	2.60	3.00	1.93	-0.20	0.02	-0.39
Caribbean	13 876	22 347	31 900	13 350	13 450	13 074	51.0	62.4	70.9	2.14	2.38	1.78	0.00	0.04	-0.14
Anguilla	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Antigua and Barbuda	20	24	34	39	42	42	34.2	35.8	44.6	0.82	0.78	1.84	0.46	0.42	0.00
Aruba	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bahamas	139	239	321	50	37	28	73.4	86.5	92.0	2.19	2.70	1.48	-2.41	-1.52	-1.41
Barbados	95	124	176	151	138	116	38.6	47.4	60.3	1.50	1.35	1.75	-0.64	-0.46	-0.86
British Virgin Islands	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cayman Islands	14	31	50	0	0	0	100.0	100.0	100.0	3.50	3.91	2.44	0.00	2.18	1.63
Cuba	5 977	8 389	10 148	3 329	2 652	2 032	64.2	76.0	83.3	1.45	1.70	0.95	-1.06	-1.14	-1.33
Dominica	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dominican Republic	2 289	5 051	7 765	2 760	2 773	2 486	45.3	64.6	75.7	3.25	3.96	2.15	-0.32	0.02	-0.54
Grenada	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Guadeloupe	272	425	536	56	2	1	82.9	99.4	99.9	2.01	2.23	1.16	-17.50	-15.69	-7.15
Haiti	1 069	2 266	5 000	3 851	4 914	5 805	21.7	31.6	46.3	4.00	3.76	3.96	1.19	1.22	0.83
Jamaica	888	1 314	1 942	1 125	1 133	1 060	44.1	53.7	64.7	1.54	1.96	1.95	-0.28	0.04	-0.33
Martinique	234	353	429	95	25	14	71.2	93.3	96.8	1.60	2.06	0.97	-5.90	-6.57	-2.91
Montserrat	1	1	3	10	9	8	11.1	13.8	25.1	1.79	0.64	3.21	-0.66	-0.59	-0.51
Netherlands Antilles	113	138	181	53	61	53	67.9	69.5	77.3	1.20	1.01	1.34	0.21	0.64	-0.67
Puerto Rico	1 879	2 698	3 481	1 114	976	814	62.8	73.4	81.1	1.38	1.81	1.27	-0.74	-0.66	-0.91
Saint Kitts and Nevis	16	18	25	29	24	19	35.0	42.4	57.0	1.06	0.49	1.70	-1.24	-1.06	-1.24
Saint Lucia	44	69	107	64	74	73	41.0	48.1	59.4	2.23	2.17	2.24	0.57	0.74	-0.04

Table A.19 *(continued)*

Major area, region or country	Urban population (thousands)			Rural population (thousands)			Percentage urban			Annual growth rate (percentage)					
										Urban population			Rural population		
	1975	1995	2015	1975	1995	2015	1975	1995	2015	1990-1995	1975-1995	1995-2015	1990-1995	1975-1995	1995-2015
Saint Vincent and the Grenadines	19	52	83	74	59	50	20.6	47.0	62.3	3.62	5.06	2.32	-1.27	-1.09	-0.80
Trinidad and Tobago	637	938	1 324	374	368	322	63.0	71.8	80.5	1.88	1.93	1.72	-0.76	-0.09	-0.67
Turks and Caicos Islands	3	6	14	4	8	10	42.8	44.5	58.4	4.73	4.06	4.01	3.17	3.72	1.19
United States Virgin Islands	42	48	68	52	57	54	44.5	45.3	55.8	0.94	0.61	1.79	0.31	0.46	-0.33
Central America	44 718	86 011	133 930	33 528	40 408	41 755	57.2	68.0	76.2	2.96	3.27	2.21	0.77	0.93	0.16
Belize	67	101	174	67	115	156	50.2	46.8	52.7	2.28	2.03	2.73	2.97	2.71	1.55
Costa Rica	814	1 702	3 073	1 154	1 722	1 831	41.3	49.7	62.7	3.50	3.69	2.95	1.40	2.00	0.31
El Salvador	1 651	2 599	4 638	2 435	3 169	3 799	40.4	45.1	55.0	2.71	2.27	2.90	1.76	1.32	0.91
Guatemala	2 211	4 404	9 758	3 812	6 217	7 994	36.7	41.5	55.0	3.88	3.45	3.98	2.20	2.45	1.26
Honduras	969	2 482	5 246	2 048	3 171	3 798	32.1	43.9	58.0	4.47	4.71	3.74	1.83	2.19	0.90
Mexico	36 948	70 535	103 296	21 923	23 139	20 948	62.8	75.3	83.1	2.80	3.23	1.91	-0.03	0.27	-0.59
Nicaragua	1 220	2 787	5 542	1 205	1 646	1 980	50.3	62.9	73.7	4.76	4.13	3.44	2.13	1.56	0.93
Panama	839	1 401	2 204	884	1 230	1 248	48.7	53.3	63.9	2.44	2.57	2.26	1.21	1.65	0.07
South America	137 578	249 331	360 245	76 842	70 459	60 195	64.2	78.0	85.7	2.51	2.97	1.84	-0.77	-0.43	-0.79
Argentina	21 029	30 463	39 327	5 021	4 123	3 333	80.7	88.1	92.2	1.57	1.85	1.28	-1.25	-0.98	-1.06
Bolivia	1 975	4 505	8 409	2 783	2 909	2 809	41.5	60.8	75.0	4.13	4.12	3.12	0.01	0.22	-0.17
Brazil	66 065	126 599	182 811	41 966	35 191	27 609	61.2	78.2	86.9	2.67	3.25	1.84	-1.37	-0.88	-1.21
Chile	8 101	11 966	15 858	2 234	2 296	2 274	78.4	83.9	87.5	1.77	1.95	1.41	0.85	0.14	-0.05
Colombia	14 434	25 526	36 762	9 342	9 575	8 548	60.7	72.7	81.1	2.43	2.85	1.82	-0.25	0.12	-0.57
Ecuador	2 926	6 698	11 313	3 981	4 763	4 623	42.4	58.4	71.0	3.49	4.14	2.62	0.53	0.90	-0.15
Falkland Islands (Malvinas)	1	2	2	1	0	0	56.3	84.1	95.4	3.01	2.54	1.37	-8.88	-4.51	-5.51
French Guiana	40	112	224	18	34	45	69.1	76.5	83.3	5.04	5.21	3.46	2.96	3.33	1.34
Guyana	220	302	535	514	532	507	30.0	36.2	51.3	2.43	1.59	2.85	0.14	0.18	-0.24
Paraguay	1 045	2 613	5 100	1 636	2 347	2 569	39.0	52.7	66.5	4.29	4.58	3.34	1.22	1.80	0.45
Peru	9 319	17 175	26 401	5 843	6 605	6 430	61.5	72.2	80.4	2.62	3.06	2.15	0.26	0.61	-0.13
Suriname	163	213	344	201	210	192	44.8	50.4	64.2	2.26	1.33	2.39	-0.01	0.21	-0.45
Uruguay	2 349	2 877	3 309	479	309	226	83.1	90.3	93.6	0.89	1.01	0.70	-2.11	-2.20	-1.55
Venezuela	9 911	20 281	29 849	2 824	1 563	1 028	77.8	92.8	96.7	2.79	3.58	1.93	-3.53	-2.96	-2.09
Northern America	176 712	223 403	282 319	62 577	69 438	62 377	73.8	76.3	81.9	1.29	1.17	1.17	0.30	0.52	-0.54
Bermuda	53	63	71	0	0	0	100.0	100.0	100.0	0.71	0.88	0.55	0.00	1.19	1.12
Canada	17 548	22 593	28 542	5 661	6 870	6 883	75.6	76.7	80.6	1.19	1.26	1.17	1.08	0.97	0.01
Greenland	37	46	55	13	12	9	74.4	79.8	85.6	1.09	1.14	0.90	-0.73	-0.40	-1.15
St. Pierre and Miquelon	5	6	7	1	1	0	88.6	91.5	93.8	0.85	0.63	0.68	-0.75	-1.01	-1.06
United States of America	159 069	200 695	253 644	56 903	62 555	55 484	73.7	76.2	82.1	1.30	1.16	1.17	0.21	0.47	-0.60
Oceania	15 389	20 063	26 605	6 050	8 486	10 319	71.8	70.3	72.1	1.46	1.33	1.41	1.74	1.69	0.98
Australia-New Zealand	14 495	18 395	23 165	2 488	3 268	3 453	85.4	84.9	87.0	1.32	1.19	1.15	1.52	1.36	0.28
Australia	11 943	15 318	19 423	1 957	2 770	3 042	85.9	84.7	86.5	1.28	1.24	1.19	1.90	1.74	0.47
New Zealand	2 552	3 077	3 742	531	499	411	82.8	86.1	90.1	1.53	0.93	0.98	-0.44	-0.32	-0.97
Melanesia	641	1 219	2 614	3 089	4 595	6 103	17.2	21.0	30.0	3.26	3.21	3.82	1.95	1.98	1.42

Table A.19 *(continued)*

Major area, region or country	Urban population (thousands)			Rural population (thousands)			Percentage urban			Annual growth rate (percentage)					
										Urban population			Rural population		
	1975	1995	2015	1975	1995	2015	1975	1995	2015	1990-1995	1975-1995	1995-2015	1990-1995	1975-1995	1995-2015
Fiji	212	319	549	364	465	497	36.7	40.7	52.5	2.22	2.05	2.72	1.05	1.21	0.33
New Caledonia	70	112	168	63	69	65	52.9	62.1	72.1	2.26	2.33	2.00	0.39	0.44	-0.27
Papua New Guinea	326	690	1 611	2 403	3 611	4 876	11.9	16.0	24.8	3.63	3.76	4.24	2.03	2.04	1.50
Solomon Islands	17	65	206	173	313	472	9.1	17.1	30.4	6.49	6.60	5.80	2.72	2.97	2.04
Vanuatu	16	33	81	86	137	194	15.7	19.3	29.3	3.38	3.56	4.52	2.28	2.31	1.76
Micronesia	104	206	403	180	276	348	36.7	42.7	53.7	2.91	3.40	3.37	1.93	2.15	1.15
Guam	31	57	96	64	93	102	32.5	38.2	48.3	2.36	3.07	2.57	2.20	1.82	0.49
Kiribati	17	28	55	39	51	65	30.1	35.7	46.0	2.38	2.62	3.36	1.41	1.35	1.23
Marshall Islands	18	37	78	12	17	21	60.7	69.1	79.0	3.96	3.62	3.73	0.85	1.75	1.14
Micronesia (Federated States of)	18	35	93	54	90	130	24.6	28.0	41.6	4.01	3.44	4.90	2.31	2.56	1.88
Nauru	6	11	19	0	0	0	100.0	100.0	100.0	2.57	2.58	2.76	0.00	1.68	1.74
Northern Mariana Islands	8	25	40	7	22	23	53.0	53.7	63.2	2.04	5.86	2.30	1.46	5.72	0.34
Palau	7	12	22	4	5	6	61.5	70.6	78.2	2.70	2.97	3.01	1.20	0.91	1.01
Polynesia	148	244	423	293	347	415	33.6	41.3	50.5	2.39	2.49	2.75	0.91	0.85	0.89
American Samoa	13	27	55	17	27	36	42.9	49.8	60.7	3.84	3.79	3.56	2.27	2.41	1.34
Cook Islands	10	12	18	9	8	7	54.0	60.4	71.1	1.83	0.57	2.17	-0.37	-0.73	-0.21
French Polynesia	73	124	196	57	96	108	56.0	56.4	64.5	2.15	2.66	2.30	2.15	2.59	0.60
Niue	1	1	1	3	1	1	23.3	29.4	34.5	-3.11	-2.28	0.36	-1.74	-3.85	-0.82
Pitcairn	0	0	0	-	-	-	0.0	0.0	0.0	0.00	0.94	1.00	-	-0.29	-
Samoa	32	36	73	121	135	188	21.0	21.0	27.9	1.07	0.58	3.52	1.07	0.57	1.64
Tokelau	0	0	0	2	2	2	0.0	0.0	0.0	0.00	1.02	1.00	0.00	0.08	0.00
Tonga	18	40	72	70	58	49	20.3	41.1	59.6	3.53	4.06	2.89	-1.58	-0.98	-0.86
Tuvalu	2	4	9	5	5	5	25.2	46.2	64.5	4.07	5.12	3.31	-0.60	0.46	-0.43
Wallis and Futuna Islands	0	0	0	9	14	19	0.0	0.0	0.0	0.00	1.59	1.34	1.10	2.31	1.45

Source: World Urbanization Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.12).

[a] Comprising all regions of Europe and Northern America, Australia-New Zealand and Japan.

[b] Comprising all regions of Africa, Asia (excluding Japan) and Latin America, and regions of Melanesia, Micronesia and Polynesia.

Table A.20. Population of urban agglomerations with 750,000 or more inhabitants in 1990, by city, 1975-2015

Agglomeration and country	Population (millions)			Population residing in agglomeration, 1995, as percentage of		Annual growth rate, 1990-1995 (percentage)	Percentage increase between	
	1975	1995	2015	Total population	Urban population		1975 and 1995	1995 and 2015
Aachen, Germany	951	1 041	1 067	1.3	1.5	0.78	9.5	2.5
Abidjan, Côte d'Ivoire	960	2 797	6 611	19.6	45.0	5.10	191.4	136.4
Accra, Ghana	851	1 687	3 726	9.7	26.6	3.66	98.2	120.9
Adana, Turkey	471	1 074	1 759	1.7	2.5	3.52	128.0	63.8
Addis Ababa, Ethiopia	929	2 209	5 850	4.0	30.0	4.00	137.8	164.8
Adelaide, Australia	882	1 039	1 203	5.7	6.8	0.38	17.8	15.8
Agra, India	681	1 063	1 803	0.1	0.4	2.46	56.1	69.6
Ahmedabad, India	2 050	3 688	6 124	0.4	1.5	2.58	79.9	66.1
Aleppo, Syrian Arab Republic	879	1 855	3 824	12.7	24.2	3.68	111.0	106.1
Alexandria, Egypt	2 241	3 577	5 546	5.7	12.7	2.30	59.6	55.0
Algiers, Algeria	1 627	3 702	6 276	13.3	23.8	3.99	127.5	69.5
Allahabad, India	568	968	1 685	0.1	0.4	2.78	70.4	74.1
Alma-Ata, Kazakhstan	834	1 262	1 680	7.4	12.4	1.71	51.3	33.1
Amman, Jordan	500	1 187	2 327	21.8	30.5	4.34	137.4	96.0
Amsterdam, Netherlands	989	1 109	1 182	7.2	8.0	1.03	12.1	6.6
Ankara, Turkey	1 709	2 826	4 095	4.6	6.6	2.19	65.4	44.9
Anshan, China	1 082	1 648	2 788	0.1	0.5	2.82	52.3	69.2
Athens, Greece	2 738	3 693	3 908	35.3	54.2	1.12	34.9	5.8
Atlanta, United States of America	1 387	2 464	3 095	0.9	1.2	2.51	77.6	25.6
Auckland, New Zealand	729	945	1 154	26.4	30.7	1.50	29.6	22.1
Baghdad, Iraq	2 747	4 478	7 324	21.9	29.4	2.04	63.0	63.6
Baku, Azerbaijan	1 429	1 853	2 461	24.5	43.9	1.12	29.7	32.8
Baltimore, United States of America	1 670	1 969	2 309	0.8	1.0	0.78	17.9	17.3
Bandung, Indonesia	1 493	2 977	5 292	1.5	4.3	3.45	99.4	77.8
Bangalore, India	2 111	4 749	8 324	0.5	1.9	3.39	125.0	75.3
Bangkok, Thailand	3 842	6 566	10 557	11.2	55.7	2.16	70.9	60.8
Baotou, China	918	1 414	2 400	0.1	0.4	2.76	54.0	69.7
Barcelona, Spain	2 873	2 819	2 820	7.1	9.3	-0.65	-1.9	0.0
Barranquilla, Colombia	730	1 138	1 582	3.2	4.5	2.21	55.9	39.0
Beijing, China	8 545	12 362	19 423	1.0	3.4	2.57	44.7	57.1
Beirut, Lebanon	1 059	1 800	2 462	59.8	68.7	2.83	70.0	36.8
Belém, Brazil	736	1 574	2 498	1.0	1.2	4.30	113.9	58.7
Belgrade, Yugoslavia	975	1 405	1 669	13.0	22.9	1.88	44.1	18.8
Belo Horizonte, Brazil	1 974	3 899	5 540	2.4	3.1	3.10	97.5	42.1
Benghazi, Libyan Arab Jamahiriya	329	1 059	1 980	19.6	22.8	3.53	221.9	87.0
Benxi, China	713	1 063	1 823	0.1	0.3	2.79	49.1	71.5
Berlin, Germany	3 227	3 317	3 317	4.1	4.7	0.18	2.8	0.0
Bhopal, India	488	1 299	2 571	0.1	0.5	4.61	166.2	97.9
Bielefeld, Germany	1 127	1 263	1 305	1.6	1.8	0.99	12.1	3.3
Birmingham, United Kingdom	2 430	2 302	2 302	4.0	4.4	0.00	-5.3	0.0
Bogor, Indonesia	406	1 221	2 583	0.6	1.7	5.50	200.7	111.5
Bogota, Colombia	3 012	5 614	7 677	16.0	22.0	2.92	86.4	36.7
Bombay, India	6 856	15 093	27 373	1.6	6.0	4.22	120.1	81.4
Boston, United States of America	2 666	2 842	3 251	1.1	1.4	0.46	6.6	14.4
Brasilia, Brazil	785	1 778	2 514	1.1	1.4	2.78	126.5	41.4
Brazzaville, Congo	338	1 009	2 081	39.0	66.3	4.82	198.5	106.2
Bremen, Germany	823	867	884	1.1	1.2	0.63	5.3	2.0
Brisbane, Australia	928	1 450	1 898	8.0	9.5	2.14	56.3	30.9
Brussels, Belgium	1 128	1 122	1 123	11.1	11.4	-0.46	-0.5	0.1
Bucharest, Romania	1 869	2 090	2 237	9.2	16.5	0.42	11.8	7.0
Budapest, Hungary	2 005	2 017	2 039	19.9	30.8	0.00	0.6	1.1
Buenos Aires, Argentina	9 134	10 990	12 376	31.8	36.1	0.68	20.3	12.6
Buffalo, United States of America	1 041	964	1 126	0.4	0.5	0.22	-7.4	16.8
Bursa, Turkey	345	1 030	1 835	1.7	2.4	4.64	198.6	78.2
Cairo, Egypt	6 079	9 656	14 494	15.3	34.3	2.24	58.8	50.1

Table A.20 *(continued)*

Agglomeration and country	Population (millions)			Population residing in agglomeration, 1995, as percentage of		Annual growth rate, 1990-1995	Percentage increase between	
	1975	1995	2015	Total population	Urban population	(percentage)	1975 and 1995	1995 and 2015
Calcutta, India	7 888	11 673	17 621	1.3	4.7	1.67	48.0	51.0
Cali, Colombia	1 038	1 769	2 467	5.0	6.9	2.58	70.4	39.5
Campinas, Brazil	671	1 607	2 429	1.0	1.3	3.65	139.5	51.2
Cape Town, South Africa	1 339	2 671	4 508	6.4	12.7	3.05	99.5	68.8
Caracas, Venezuela	2 282	2 959	3 858	13.6	14.6	1.30	29.7	30.4
Casablanca, Morocco	1 765	3 289	5 114	12.2	25.2	3.11	86.3	55.5
Changchun, China	1 558	2 523	4 228	0.2	0.7	3.03	61.9	67.6
Changsha, China	942	1 559	2 660	0.1	0.4	3.12	65.5	70.6
Chelyabinsk, Russian Federation	966	1 175	1 185	0.8	1.1	0.37	21.6	0.9
Chengdu, China	2 076	3 401	5 623	0.3	0.9	2.90	63.8	65.3
Chicago, United States of America	6 749	6 846	7 528	2.6	3.4	0.16	1.4	10.0
Chittagong, Bangladesh	1 017	2 410	5 212	2.0	10.9	3.84	137.0	116.3
Chongqing, China	2 439	3 525	5 788	0.3	1.0	2.66	44.5	64.2
Cincinnati, United States of America	1 117	1 266	1 507	0.5	0.6	0.82	13.3	19.0
Ciudad Juarez, Mexico	490	952	1 390	1.0	1.4	3.30	94.3	46.0
Cleveland, United States of America	1 848	1 692	1 943	0.6	0.8	0.20	-8.4	14.8
Coimbatore, India	810	1 244	2 046	0.1	0.5	2.10	53.6	64.5
Cologne, Germany	2 633	2 984	3 069	3.7	4.2	0.89	13.3	2.8
Columbus, United States of America	813	1 008	1 229	0.4	0.5	1.22	24.0	21.9
Conakry, Guinea	373	1 508	3 873	22.5	76.1	5.82	304.3	156.8
Copenhagen, Denmark	1 381	1 326	1 326	25.6	30.0	-0.28	-4.0	0.0
Cordoba, Argentina	878	1 294	1 676	3.7	4.3	1.87	47.4	29.5
Curitiba, Brazil	1 035	2 270	3 399	1.4	1.8	3.63	119.3	49.7
Dacca, Bangladesh	1 925	7 832	18 964	6.5	35.5	5.74	306.9	142.1
Dakar, Senegal	768	1 986	4 080	23.9	56.6	4.16	158.6	105.4
Dalian, China	1 396	3 132	5 402	0.3	0.9	4.58	124.4	72.5
Dallas, United States of America	2 234	3 612	4 443	1.4	1.8	2.30	61.7	23.0
Damascus, Syrian Arab Republic	1 122	2 052	4 047	14.0	26.7	2.73	82.9	97.2
Daqing, China	627	1 151	1 997	0.1	0.3	3.38	83.6	73.5
Dar es Salaam, United Republic of Tanzania	638	1 734	3 965	5.8	24.0	3.77	171.8	128.7
Datong, China	877	1 275	2 168	0.1	0.4	2.69	45.4	70.0
Davao, Philippines	488	1 010	1 738	1.5	2.8	3.42	107.0	72.1
Delhi, India	4 426	9 882	17 553	1.1	3.9	3.80	123.3	77.6
Denver, United States of America	1 198	1 611	1 929	0.6	0.8	1.13	34.5	19.7
Detroit, United States of America	3 885	3 725	4 173	1.4	1.9	0.17	-4.1	12.0
Dhanbad, India	526	887	1 445	0.1	0.4	1.87	68.6	62.9
Dnepropetrovsk, Ukraine	981	1 230	1 285	2.4	3.4	0.62	25.4	4.5
Donetsk, Ukraine	963	1 149	1 196	2.2	3.2	0.49	19.3	4.1
Douala, Cameroon	380	1 322	3 026	10.0	22.3	5.56	247.9	128.9
Dublin, Ireland	833	911	1 011	25.6	44.6	-0.12	9.4	11.0
Durban, South Africa	894	1 149	1 939	2.8	5.5	1.82	28.5	68.8
Dusseldorf, Germany	2 590	3 031	3 320	3.7	4.3	2.31	17.0	9.5
East Rand, South Africa	943	1 217	2 050	2.9	5.8	1.83	29.1	68.4
Edmonton, Canada	543	991	1 369	3.4	4.4	4.05	82.5	38.1
Ekaterinburg, Russian Federation	1 135	1 413	1 430	1.0	1.3	0.49	24.5	1.2
Erevan, Armenia	911	1 305	1 685	36.3	52.8	1.51	43.2	29.1
Esfahan, Iran (Islamic Republic of)	767	1 915	4 618	2.9	4.8	7.48	149.7	141.1
Essen, Germany	6 448	6 481	6 526	7.9	9.2	0.40	0.5	0.7
Faisalabad, Pakistan	907	1 875	4 106	1.3	3.9	3.88	106.7	119.0
Florence, Italy	916	778	778	1.4	2.0	-1.06	-15.1	0.0
Fort Lauderdale, United States of America	797	1 365	1 695	0.5	0.7	1.85	71.3	24.2
Fortaleza, Brazil	1 241	2 660	4 034	1.6	2.1	3.86	114.3	51.7
Frankfurt, Germany	3 215	3 606	3 702	4.4	5.1	0.85	12.2	2.7
Fushun, China	1 082	1 595	2 694	0.1	0.4	2.73	47.4	68.9
Fuxin, China	572	880	1 523	0.1	0.2	2.89	53.8	73.1

Table A.20 *(continued)*

Agglomeration and country	Population (millions)			Population residing in agglomeration, 1995, as percentage of		Annual growth rate, 1990-1995	Percentage increase between	
	1975	1995	2015	Total population	Urban population	(percentage)	1975 and 1995	1995 and 2015
Fuzhou, China	1 012	1 535	2 602	0.1	0.4	2.82	51.7	69.5
Gdansk, Poland	766	914	1 058	2.4	3.7	0.67	19.3	15.8
Genoa, Italy	1 086	890	890	1.6	2.3	-1.17	-18.0	0.0
Goiânia, Brazil	517	1 033	1 444	0.6	0.8	2.46	99.8	39.8
Guadalajara, Mexico	1 857	3 165	4 209	3.4	4.5	1.98	70.4	33.0
Guangzhou, China	3 102	4 056	6 591	0.3	1.1	2.41	30.8	62.5
Guatemala City, Guatemala	715	946	1 917	8.9	21.5	2.33	32.3	102.6
Guayaquil, Ecuador	867	1 717	2 776	15.0	25.6	2.82	98.0	61.7
Guiyang, China	1 140	1 792	3 025	0.2	0.5	2.85	57.2	68.8
Gujranwala, Pakistan	439	1 663	3 812	1.2	3.4	5.66	278.8	129.2
Hamburg, Germany	2 479	2 625	2 672	3.2	3.7	0.66	5.9	1.8
Handan, China	765	1 323	2 270	0.1	0.4	3.13	72.9	71.6
Hangzhou, China	1 097	1 581	2 670	0.1	0.4	2.68	44.1	68.9
Hanoi, Viet Nam	816	1 247	2 363	1.7	8.1	2.20	52.8	89.5
Hanover, Germany	1 210	1 267	1 287	1.6	1.8	0.60	4.7	1.6
Harare, Zimbabwe	529	1 044	2 186	9.3	28.9	4.03	97.4	109.4
Harbin, China	2 288	3 303	5 425	0.3	0.9	2.57	44.4	64.2
Havana, Cuba	1 827	2 241	2 546	20.3	26.7	1.08	22.7	13.6
Hefei, China	716	1 143	1 965	0.1	0.3	2.98	59.6	71.9
Helsinki, Finland	568	1 059	1 316	20.7	32.8	3.89	86.4	24.3
Hiroshima, Japan	505	886	933	0.7	0.9	1.05	75.4	5.3
Ho Chi Minh, Viet Nam	2 353	3 555	6 439	4.8	23.0	1.88	51.1	81.1
Hohhot, China	617	1 067	1 847	0.1	0.3	3.18	72.9	73.1
Hong Kong, Hong Kong, China	3 943	5 574	5 849	95.0	100.0	0.75	41.4	4.9
Houston, United States of America	2 030	3 166	3 802	1.2	1.6	1.65	56.0	20.1
Hyderabad, India	2 086	5 343	10 663	0.6	2.1	5.17	156.1	99.6
Hyderabad, Pakistan	667	1 107	2 433	0.8	2.3	3.28	66.0	119.8
Ibadan, Nigeria	847	1 484	2 982	1.3	3.4	2.80	75.2	100.9
Inchon, Republic of Korea	788	2 340	3 549	5.2	6.4	5.41	197.0	51.7
Indianapolis, United States of America	829	961	1 159	0.4	0.5	0.94	15.9	20.6
Indore, India	663	1 250	2 175	0.1	0.5	2.86	88.5	74.0
Istanbul, Turkey	3 601	7 817	12 345	12.6	18.4	3.67	117.1	57.9
Izmir, Turkey	1 046	2 031	3 198	3.3	4.8	3.20	94.2	57.5
Jabalpur, India	621	950	1 514	0.1	0.4	1.58	53.0	59.4
Jaipur, India	778	1 801	3 382	0.2	0.7	4.00	131.5	87.8
Jakarta, Indonesia	4 814	11 500	21 170	5.8	16.4	4.35	138.9	84.1
Jamshedpur, India	538	918	1 533	0.1	0.4	2.20	70.6	67.0
Jeddah, Saudi Arabia	584	1 468	2 771	8.2	10.2	3.76	151.4	88.8
Jilin, China	952	1 506	2 563	0.1	0.4	2.95	58.2	70.2
Jinan, China	1 236	3 019	5 250	0.3	0.8	4.88	144.3	73.9
Jinzhou, China	530	1 090	1 932	0.1	0.3	4.22	105.7	77.2
Jixi, China	656	1 034	1 779	0.1	0.3	2.87	57.6	72.1
Johannesburg, South Africa	1 498	1 849	3 059	4.5	8.8	1.66	23.4	65.4
Kabul, Afghanistan	674	2 034	5 384	10.1	50.5	5.24	201.8	164.7
Kampala, Uganda	399	954	2 610	4.5	35.7	4.69	139.1	173.6
Kanpur, India	1 420	2 356	3 941	0.3	0.9	2.53	65.9	67.3
Kansas City, United States of America	1 100	1 373	1 673	0.5	0.7	1.41	24.8	21.8
Kaohsiung, China	978	1 726	2 932	0.1	0.5	3.07	76.5	69.9
Karachi, Pakistan	3 983	9 863	20 616	7.0	20.2	4.27	147.6	109.0
Karlsruhe, Germany	861	955	985	1.2	1.4	0.91	10.9	3.1
Katowice, Poland	3 019	3 552	3 930	9.3	14.3	0.59	17.7	10.6
Kazan, Russian Federation	942	1 128	1 138	0.8	1.0	0.35	19.7	0.9
Kharkov, Ukraine	1 353	1 680	1 742	3.3	4.7	0.65	24.2	3.7
Khartoum, Sudan	887	2 429	5 782	8.7	35.1	4.46	173.8	138.0
Khulna, Bangladesh	472	998	2 067	0.8	4.5	2.97	111.4	107.1

Table A.20 *(continued)*

Agglomeration and country	Population (millions)			Population residing in agglomeration, 1995, as percentage of		Annual growth rate, 1990-1995 (percentage)	Percentage increase between	
	1975	1995	2015	Total population	Urban population		1975 and 1995	1995 and 2015
Kiev, Ukraine	1 926	2 809	2 966	5.5	7.8	1.25	45.8	5.6
Kinshasa, Democratic Republic of the Congo	1 735	4 214	9 855	9.6	33.0	3.97	142.9	133.9
Kitakyushu, Japan	1 853	2 704	3 022	2.2	2.8	1.99	45.9	11.8
Kochi (Cochin), India	532	1 420	2 905	0.2	0.6	5.08	166.9	104.6
Kozhikode, India	412	946	1 780	0.1	0.4	3.83	129.6	88.2
Krakow, Poland	698	859	1 001	2.2	3.5	0.80	23.1	16.5
Krasnoyarsk, Russian Federation	734	959	984	0.7	0.9	0.66	30.7	2.6
Kuala Lumpur, Malaysia	645	1 238	1 912	6.2	11.5	1.98	91.9	54.4
Kunming, China	1 223	1 942	3 270	0.2	0.5	2.87	58.8	68.4
Kuwait City, Kuwait	682	1 090	1 572	70.5	72.7	0.00	59.8	44.2
Kwangchu, Republic of Korea	600	1 424	2 069	3.2	3.9	4.68	137.3	45.3
Kyoto, Japan	1 622	1 703	1 703	1.4	1.8	-0.07	5.0	0.0
La Paz, Bolivia	610	1 246	2 159	16.8	27.7	3.59	104.3	73.3
Lagos, Nigeria	3 300	10 287	24 437	9.2	23.4	5.68	211.7	137.6
Lahore, Pakistan	2 399	5 085	10 767	3.6	10.4	3.87	112.0	111.7
Lanzhou, China	1 175	1 747	2 935	0.1	0.5	2.61	48.7	68.0
Leeds, United Kingdom	1 508	1 460	1 468	2.5	2.8	0.04	-3.2	0.5
Leon de los Alda, Mexico	471	1 043	1 521	1.1	1.5	3.33	121.4	45.8
Lille, France	943	970	1 035	1.7	2.3	0.20	2.9	6.7
Lima, Peru	3 660	7 452	10 526	31.3	43.4	2.81	103.6	41.3
Lisbon, Portugal	1 168	1 863	2 357	19.0	53.3	2.33	59.5	26.5
Liuzhou, China	464	905	1 589	0.1	0.2	3.55	95.0	75.6
Lodz, Poland	971	1 063	1 208	2.8	4.3	0.38	9.5	13.6
London, United Kingdom	8 169	7 335	7 335	12.6	14.1	0.00	-10.2	0.0
Los Angeles, United States of America	8 926	12 410	14 274	4.7	6.2	1.60	39.0	15.0
Louisville, United States of America	751	763	899	0.3	0.4	0.23	1.6	17.8
Luanda, Angola	669	2 207	5 548	19.9	61.9	5.92	229.9	151.4
Lucknow, India	892	2 029	4 057	0.2	0.8	4.88	127.5	100.0
Ludhiana, India	479	1 263	2 598	0.1	0.5	5.11	163.7	105.7
Luoyang, China	797	1 411	2 420	0.1	0.4	3.20	77.0	71.5
Lusaka, Zambia	385	1 327	3 031	14.0	32.6	6.08	244.7	128.4
Lvov, Ukraine	620	852	921	1.7	2.4	1.16	37.4	8.1
Lyon, France	1 185	1 311	1 416	2.3	3.1	0.69	10.6	8.0
Madras, India	3 609	5 906	9 451	0.6	2.4	2.23	63.6	60.0
Madrid, Spain	3 823	4 072	4 072	10.3	13.4	-0.48	6.5	0.0
Madurai, India	790	1 186	1 919	0.1	0.5	1.86	50.1	61.8
Managua, Nicaragua	493	1 195	2 245	27.0	42.9	4.29	142.4	87.9
Manaus, Brazil	439	1 189	1 893	0.7	0.9	4.25	170.8	59.2
Manchester, United Kingdom	2 425	2 277	2 277	3.9	4.4	0.00	-6.1	0.0
Mannheim, Germany	1 422	1 571	1 615	1.9	2.2	0.88	10.5	2.8
Maputo, Mozambique	532	2 227	5 760	13.9	40.6	7.11	318.6	158.6
Maracaibo, Venezuela	825	1 600	2 475	7.3	7.9	3.40	93.9	54.7
Maracay, Venezuela	614	868	1 203	4.0	4.3	1.73	41.4	38.6
Marseille, France	1 194	1 230	1 293	2.1	2.9	0.00	3.0	5.1
Mashhad, Iran (Islamic Republic of)	685	2 011	3 644	3.0	5.1	3.65	193.6	81.2
Medan, Indonesia	1 031	2 222	4 094	1.1	3.2	3.84	115.5	84.2
Medellin, Colombia	1 201	1 743	2 361	5.0	6.8	1.90	45.1	35.5
Meerut, India	432	1 032	2 048	0.1	0.4	4.56	138.9	98.4
Melbourne, Australia	2 561	3 094	3 545	17.1	20.2	0.60	20.8	14.6
Memphis, United States of America	720	857	1 028	0.3	0.4	0.73	19.0	20.0
Mendoza, Argentina	534	851	1 151	2.5	2.8	2.32	59.4	35.3
Metro Manila, Philippines	5 000	9 280	14 711	13.7	25.3	3.05	85.6	58.5
Mexico City, Mexico	11 236	15 643	18 786	16.7	22.2	0.73	39.2	20.1
Miami, United States of America	1 410	2 082	2 524	0.8	1.0	1.59	47.7	21.2
Milan, Italy	5 529	4 251	4 251	7.4	11.2	-1.59	-23.1	0.0

Table A.20 ***(continued)***

Agglomeration and country	Population (millions)			Population residing in agglomeration, 1995, as percentage of		Annual growth rate, 1990-1995 (percentage)	Percentage increase between	
	1975	1995	2015	Total population	Urban population		1975 and 1995	1995 and 2015
Milwaukee, United States of America	1 228	1 247	1 455	0.5	0.6	0.33	1.5	16.7
Minneapolis, United States of America	1 748	2 239	2 686	0.9	1.1	1.40	28.1	20.0
Minsk, Belarus	1 120	1 766	1 912	17.4	24.5	1.39	57.7	8.3
Mogadishu, Somalia	271	982	2 463	10.6	41.2	4.63	262.4	150.8
Monterrey, Mexico	1 574	2 806	3 749	3.0	4.0	2.00	78.3	33.6
Montevideo, Uruguay	1 178	1 326	1 448	41.6	46.1	0.60	12.6	9.2
Montreal, Canada	2 792	3 320	3 676	11.3	14.7	1.46	18.9	10.7
Moscow, Russian Federation	7 623	9 233	9 306	6.3	8.3	0.40	21.1	0.8
Multan, Pakistan	599	1 257	2 796	0.9	2.6	3.96	109.8	122.4
Munich, Germany	1 957	2 238	2 308	2.7	3.2	0.95	14.4	3.1
Nagoya, Japan	2 293	3 196	3 488	2.6	3.3	1.68	39.4	9.1
Nagpur, India	1 075	1 847	3 085	0.2	0.7	2.44	71.8	67.0
Nairobi, Kenya	677	2 079	5 361	7.4	26.6	6.27	207.1	157.9
Nanchang, China	896	1 646	2 825	0.1	0.5	3.44	83.7	71.6
Nanjing, China	1 938	2 965	4 919	0.2	0.8	2.85	53.0	65.9
Nanning, China	672	1 498	2 609	0.1	0.4	3.94	122.9	74.2
Naples, Italy	3 624	3 012	3 012	5.3	7.9	-1.28	-16.9	0.0
Naucalpan, Mexico	528	1 793	2 798	1.9	2.5	5.27	239.6	56.1
New Orleans, United States of America	1 021	1 050	1 225	0.4	0.5	0.21	2.8	16.7
New York, United States of America	15 880	16 329	17 636	6.2	8.1	0.34	2.8	8.0
Nizhni Novgorod, Russian Federation	1 273	1 454	1 454	1.0	1.3	0.09	14.2	0.0
Norfolk, United States of America	720	1 682	2 332	0.6	0.8	4.53	133.6	38.6
Novosibirsk, Russian Federation	1 250	1 469	1 472	1.0	1.3	0.27	17.5	0.2
Nuremberg, Germany	1 034	1 161	1 200	1.4	1.6	0.98	12.3	3.4
Odessa, Ukraine	982	1 122	1 157	2.2	3.1	0.25	14.3	3.1
Oklahoma City, United States of America	628	846	1 047	0.3	0.4	1.44	34.7	23.8
Omsk, Russian Federation	933	1 199	1 219	0.8	1.1	0.56	28.5	1.7
Orlando, United States of America	427	1 077	1 457	0.4	0.5	3.66	152.2	35.3
Osaka, Japan	9 844	10 601	10 601	8.5	10.9	0.23	7.7	0.0
Ottawa, Canada	676	1 057	1 386	3.6	4.7	3.38	56.4	31.1
Palembang, Indonesia	597	1 459	2 846	0.7	2.1	4.47	144.4	95.1
Panama City, Panama	486	948	1 451	36.0	67.7	2.77	95.1	53.1
Paris, France	8 885	9 469	9 591	16.3	22.4	0.29	6.6	1.3
Patna, India	643	1 187	1 910	0.1	0.5	1.79	84.6	60.9
Perm, Russian Federation	937	1 112	1 117	0.8	1.0	0.25	18.7	0.4
Perth, Australia	770	1 220	1 547	6.7	8.0	1.66	58.4	26.8
Peshawar, Pakistan	347	1 676	3 907	1.2	3.4	6.38	383.0	133.1
Philadelphia, United States of America	4 069	4 304	4 844	1.6	2.1	0.37	5.8	12.5
Phoenix, United States of America	1 117	2 353	3 025	0.9	1.2	3.01	110.7	28.6
Pittsburgh, United States of America	1 827	1 692	1 943	0.6	0.8	0.20	-7.4	14.8
Port-au-Prince, Haiti	575	1 266	2 641	17.6	55.9	3.92	120.2	108.6
Portland, United States of America	925	1 253	1 522	0.5	0.6	1.27	35.5	21.5
Porto Alegre, Brazil	1 837	3 349	4 648	2.1	2.7	2.74	82.3	38.8
Prague, Czech Republic	1 125	1 225	1 297	11.9	18.2	0.24	8.9	5.9
Pretoria, South Africa	643	1 073	1 847	2.6	5.1	2.59	66.9	72.1
Providence/Warwick, United States of America	796	878	1 052	0.3	0.4	0.71	10.3	19.8
Puebla de Zaragoza, Mexico	566	1 220	1 723	1.3	1.7	2.71	115.5	41.2
Pune (Poona), India	1 345	2 940	5 407	0.3	1.2	3.88	118.6	83.9
Pusan, Republic of Korea	2 415	4 082	4 584	9.1	11.2	1.55	69.0	12.3
Pyongyang, Dem. Peo. Rep. of Korea	1 328	2 470	3 390	10.3	16.9	2.04	86.0	37.2
Qingdao, China	1 106	1 585	2 679	0.1	0.4	2.73	43.3	69.0
Qiqihar, China	1 090	1 642	2 774	0.1	0.4	2.77	50.6	68.9
Quito, Ecuador	630	1 244	2 003	10.9	18.6	2.66	97.5	61.0
Rabat, Morocco	639	1 578	2 773	5.8	12.1	4.52	146.9	75.7
Rawalpindi, Pakistan	670	1 290	2 849	0.9	2.7	3.70	92.5	120.9

Table A.20 *(continued)*

Agglomeration and country	Population (millions)			Population residing in agglomeration, 1995, as percentage of		Annual growth rate, 1990-1995 (percentage)	Percentage increase between	
	1975	1995	2015	Total population	Urban population		1975 and 1995	1995 and 2015
Recife, Brazil	1 949	3 168	4 381	2.0	2.5	2.67	62.5	38.3
Riga, Latvia	789	924	934	36.1	49.6	0.07	17.1	1.1
Rio de Janeiro, Brazil	7 875	9 888	11 554	6.1	7.8	0.77	25.6	16.8
Riverside-San Bernardino, United States of America	645	1 467	2 018	0.6	0.7	4.26	127.4	37.6
Riyadh, Saudi Arabia	705	2 576	5 117	14.4	18.0	5.32	265.4	98.6
Rome, Italy	2 998	2 931	2 931	5.1	7.7	-0.23	-2.2	0.0
Rosario, Argentina	878	1 155	1 436	3.3	3.8	1.28	31.5	24.3
Rostov-on-Don, Russian Federation	874	1 043	1 050	0.7	0.9	0.27	19.3	0.7
Rotterdam, Netherlands	1 032	1 064	1 098	6.9	7.7	0.31	3.1	3.2
Saarland, Germany	908	888	891	1.1	1.3	0.24	-2.2	0.3
Sacramento, United States of America	714	1 270	1 646	0.5	0.6	2.78	77.9	29.6
Saint Louis, United States of America	1 865	2 009	2 336	0.8	1.0	0.60	7.7	16.3
Salt Lake City, United States of America	573	854	1 058	0.3	0.4	1.49	49.0	23.9
Salvador, Brazil	1 387	2 819	4 134	1.7	2.2	3.42	103.2	46.6
Samara, Russian Federation	1 146	1 260	1 260	0.9	1.1	0.00	9.9	0.0
San Antonio, United States of America	859	1 231	1 519	0.5	0.6	1.64	43.3	23.4
San Diego, United States of America	1 442	2 716	3 436	1.0	1.4	2.75	88.3	26.5
San Francisco, United States of America	3 093	3 866	4 524	1.5	1.9	1.20	25.0	17.0
San José, Costa Rica	522	879	1 512	25.7	51.7	2.92	68.4	72.0
San José, United States of America	1 135	1 540	1 865	0.6	0.8	1.34	35.7	21.1
San Juan, Puerto Rico	879	1 101	1 292	30.0	40.8	0.15	25.3	17.3
Santiago, Chile	3 247	5 065	6 255	35.5	42.3	1.98	56.0	23.5
Santiago de los Caballeros, Dominican Republic	346	1 007	1 521	12.9	19.9	3.86	191.0	51.0
Santo Domingo, Dominican Republic	1 082	2 580	3 720	33.0	51.1	3.20	138.4	44.2
Santos, Brazil	771	1 173	1 551	0.7	0.9	1.75	52.1	32.2
Sao Paulo, Brazil	9 890	16 417	20 783	10.2	13.0	2.01	66.0	26.6
Sapporo, Japan	978	1 699	1 913	1.4	1.8	2.05	73.7	12.6
Saratov, Russian Federation	816	913	918	0.6	0.8	0.03	11.9	0.5
Seattle, United States of America	1 316	1 939	2 398	0.7	1.0	2.00	47.3	23.7
Semarang, Indonesia	660	1 489	2 818	0.8	2.1	4.07	125.6	89.3
Sendai, Japan	635	799	841	0.6	0.8	1.02	25.8	5.3
Seoul, Republic of Korea	6 799	11 641	13 139	25.9	31.8	1.95	71.2	12.9
Shanghai, China	11 443	15 082	23 382	1.2	4.1	2.29	31.8	55.0
Shantou, China	642	981	1 689	0.1	0.3	2.86	52.8	72.2
Shenyang, China	3 697	5 310	8 588	0.4	1.4	2.59	43.6	61.7
Shijiazhuang, China	940	1 547	2 639	0.1	0.4	3.11	64.6	70.6
Shiraz, Iran (Islamic Republic of)	418	1 022	1 614	1.5	2.6	1.57	144.5	57.9
Shubra El-Khema, Egypt	353	1 162	2 120	1.9	4.1	5.28	229.2	82.4
Singapore, Singapore	2 263	2 848	3 221	100.0	100.0	1.03	25.9	13.1
Sofia, Bulgaria	960	1 384	1 425	15.8	22.3	1.05	44.2	3.0
Srinagar, India	494	1 018	1 884	0.1	0.4	3.62	106.1	85.1
St. Petersburg, Russian Federation	4 326	5 111	5 111	3.5	4.6	0.23	18.1	0.0
Stockholm, Sweden	1 224	1 545	1 667	17.6	21.2	0.73	26.2	7.9
Stuttgart, Germany	2 300	2 608	2 692	3.2	3.7	0.97	13.4	3.2
Surabaja, Indonesia	1 471	2 742	4 762	1.4	3.9	3.11	86.4	73.7
Surat, India	642	1 890	3 837	0.2	0.8	5.07	194.4	103.0
Suzhou, China	619	908	1 567	0.1	0.3	2.80	46.7	72.6
Sydney, Australia	2 960	3 590	4 031	19.9	23.4	0.37	21.3	12.3
Tabriz, Iran (Islamic Republic of)	662	1 450	2 393	2.2	3.7	2.28	119.0	65.0
Taegu, Republic of Korea	1 296	2 432	2 832	5.4	6.7	1.87	87.7	16.4
Taejon, Republic of Korea	501	1 285	1 790	2.9	3.5	4.08	156.5	39.3
Taipei, China	1 835	3 417	5 700	0.3	0.9	3.28	86.2	66.8
Taiyuan, China	1 519	2 502	4 189	0.2	0.7	3.00	64.7	67.4
Tampa, United States of America	1 094	1 905	2 363	0.7	1.0	2.05	74.1	24.0
Tangshan, China	1 198	1 767	2 962	0.1	0.5	2.54	47.5	67.6

Table A.20 ***(continued)***

Agglomeration and country	Population (millions) 1975	1995	2015	Population residing in agglomeration, 1995, as percentage of: Total population	Urban population	Annual growth rate, 1990-1995 (percentage)	Percentage increase between: 1975 and 1995	1995 and 2015
Tanjung Karang, Indonesia	228	1 232	3 240	0.6	1.8	8.43	440.4	163.0
Tashkent, Uzbekistan	1 612	2 288	3 705	10.0	24.3	1.63	41.9	61.9
Tbilisi, Georgia	993	1 353	1 651	24.8	42.4	1.15	36.3	22.0
Teheran, Iran (Islamic Republic of)	4 274	6 830	10 211	10.2	17.2	1.45	59.8	49.5
Tel Aviv, Israel	1 206	1 921	2 385	34.1	37.7	1.41	59.3	24.2
Thessaloniki, Greece	617	928	1 027	8.9	13.6	1.55	50.4	10.7
Thiruvananthapur, India	454	1 009	2 011	0.1	0.4	4.62	122.2	99.3
Tianjin, China	6 160	10 687	16 998	0.9	2.9	2.88	73.5	59.1
Tijuana, Mexico	382	954	1 477	1.0	1.4	4.66	149.7	54.8
Tokyo, Japan	19 771	26 836	28 701	21.5	27.6	1.41	35.7	6.9
Toronto, Canada	2 770	4 483	5 716	15.2	19.8	3.46	61.8	27.5
Tripoli, Libyan Arab Jamahiriya	675	3 272	6 044	60.5	70.4	4.64	384.7	84.7
Tunis, Tunisia	868	2 037	3 092	22.9	40.0	3.14	134.7	51.8
Turin, Italy	1 641	1 294	1 294	2.3	3.4	-1.49	-21.1	0.0
Ufa, Russian Federation	887	1 126	1 142	0.8	1.0	0.47	26.9	1.4
Ujung Pandang, Indonesia	502	1 239	2 434	0.6	1.8	4.51	146.8	96.4
Ulhasnagar, India	490	1 322	2 687	0.1	0.5	4.97	169.8	103.3
Urumqi, China	717	1 643	2 857	0.1	0.4	4.01	129.1	73.9
Vadodara, India	571	1 329	2 519	0.1	0.5	4.04	132.7	89.5
Valencia, Venezuela	507	1 260	2 087	5.8	6.2	4.25	148.5	65.6
Vancouver, Canada	1 150	1 823	2 323	6.2	8.1	3.16	58.5	27.4
Varanasi, India	682	1 145	1 949	0.1	0.5	2.53	67.9	70.2
Vienna, Austria	2 001	2 060	2 181	25.9	46.6	0.06	2.9	5.9
Vijayawada, India	419	1 024	2 012	0.1	0.4	4.43	144.4	96.5
Visakhapatnam, India	452	1 338	2 840	0.1	0.5	5.55	196.0	112.3
Volgograd, Russian Federation	884	1 017	1 020	0.7	0.9	0.16	15.0	0.3
Voronezh, Russian Federation	732	926	947	0.6	0.8	0.57	26.5	2.3
Warsaw, Poland	1 907	2 316	2 610	6.0	9.3	0.71	21.4	12.7
Washington, D.C., United States of America	2 626	4 111	5 049	1.6	2.1	2.35	56.5	22.8
West Palm Beach, United States of America	379	990	1 371	0.4	0.5	4.14	161.2	38.5
West Rand, South Africa	489	865	1 507	2.1	4.1	2.78	76.9	74.2
Wuhan, China	2 926	4 399	7 182	0.4	1.2	2.72	50.3	63.3
Wuxi, China	730	1 086	1 861	0.1	0.3	2.77	48.8	71.4
Xian, China	1 939	3 283	5 472	0.3	0.9	3.19	69.3	66.7
Xuzhou, China	667	1 084	1 867	0.1	0.3	3.00	62.5	72.2
Yangon, Myanmar	1 760	3 851	7 407	8.3	31.6	3.08	118.8	92.3
Yaounde, Cameroon	276	1 121	2 651	8.5	18.9	6.19	306.2	136.5
Yichun, China	664	1 051	1 803	0.1	0.3	2.78	58.3	71.6
Zaporozhye, Ukraine	730	933	991	1.8	2.6	0.81	27.8	6.2
Zhengzhou, China	1 227	1 999	3 371	0.2	0.5	2.98	62.9	68.6
Zurich, Switzerland	713	897	1 108	12.5	20.5	1.64	25.8	23.5

Source: World Urbanization Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.12).

Table A.21. Fertility trends, major areas, regions and countries, 1970-1995, and Governments' views on fertility

Major area, region or country	Total fertility rate (per woman) 1970-1975	1990-1995	Annual percentage change, 1970-1975 to 1990-1995	View on fertility and type of intervention to modify fertility
World total	4.46	3.10	-1.8	
More developed regions [a]	2.11	1.70	-1.1	
Less developed regions [b]	5.39	3.48	-2.2	
Least developed countries	6.68	5.80	-0.7	
Africa	6.55	5.80	-0.6	
Eastern Africa	6.96	6.47	-0.4	
Burundi	6.80	6.80	-0.0	Too high: intervene to lower
Comoros	7.05	7.05	0.0	Too high: intervene to lower
Djibouti	6.70	5.80	-0.7	Satisfactory: no intervention
Eritrea	6.20	5.80	-0.3	Too high: intervene to lower
Ethiopia	6.80	7.00	0.1	Too high: intervene to lower
Kenya	8.12	6.28	-1.3	Too high: intervene to lower
Madagascar	6.60	6.10	-0.4	Too high: intervene to lower
Malawi	7.40	7.20	-0.1	Too high: intervene to lower
Mauritius	3.25	2.35	-1.6	Satisfactory: intervene to maintain
Mozambique	6.50	6.50	0.0	Too high: intervene to lower
Réunion	3.93	2.32	-2.6	..
Rwanda	8.29	6.55	-1.2	Too high: intervene to lower
Somalia	7.00	7.00	0.0	Satisfactory: no intervention
Uganda	6.90	7.30	0.3	Too high: intervene to lower
United Republic of Tanzania	6.80	5.90	-0.7	Too high: intervene to lower
Zambia	6.90	5.98	-0.7	Too high: intervene to lower
Zimbabwe	7.20	5.01	-1.8	Too high: intervene to lower
Middle Africa	6.25	6.45	0.2	
Angola	6.60	7.20	0.4	Too high: no intervention
Cameroon	6.30	5.70	-0.5	Too high: intervene to lower
Central African Republic	5.72	5.69	-0.0	Too high: no intervention
Chad	5.99	5.89	-0.1	Satisfactory: no intervention
Congo	6.29	6.29	-0.0	Too high: intervene to lower
Democratic Republic of the Congo (formerly Zaire)	6.30	6.70	0.3	Satisfactory: no intervention
Equatorial Guinea	5.68	5.89	0.2	Satisfactory: intervene to maintain
Gabon	4.26	5.34	1.1	Too low: intervene to raise
Northern Africa	6.33	4.19	-2.1	
Algeria	7.38	3.85	-3.3	Too high: intervene to lower
Egypt	5.54	3.88	-1.8	Too high: intervene to lower
Libyan Arab Jamahiriya	7.59	6.39	-0.9	Satisfactory: no intervention
Morocco	6.89	3.75	-3.0	Too high: intervene to lower
Sudan	6.67	5.74	-0.7	Too high: intervene to lower
Tunisia	6.15	3.15	-3.3	Too high: intervene to lower
Southern Africa	5.56	4.21	-1.4	
Botswana	6.60	4.85	-1.5	Too high: intervene to lower
Lesotho	5.74	5.20	-0.5	Too high: intervene to lower
Namibia	6.00	5.25	-0.7	Too high: no intervention
South Africa	5.49	4.10	-1.5	Too high: intervene to lower
Swaziland	6.50	4.86	-1.5	Too high: intervene to lower

Table A.21 *(continued)*

Major area, region or country	Total fertility rate (per woman) 1970-1975	Total fertility rate (per woman) 1990-1995	Annual percentage change, 1970-1975 to 1990-1995	View on fertility and type of intervention to modify fertility
Western Africa	6.68	6.54	-0.1	
Benin	7.06	7.10	0.0	Satisfactory: no intervention
Burkina Faso	6.41	6.50	0.1	Too high: intervene to lower
Cape Verde	7.00	4.26	-2.5	Too high: intervene to lower
Côte d'Ivoire	7.41	7.41	0.0	Satisfactory: intervene to raise
Gambia	6.50	5.60	-0.7	Too high: intervene to lower
Ghana	6.64	5.96	-0.5	Too high: intervene to lower
Guinea	7.00	7.00	-0.0	Too high: intervene to lower
Guinea-Bissau	5.38	5.79	0.4	Too high: no intervention
Liberia	6.80	6.80	-0.0	Too high: intervene to lower
Mali	7.11	7.10	-0.0	Too high: intervene to lower
Mauritania	6.50	5.40	-0.9	Satisfactory: no intervention
Niger	8.12	7.40	-0.5	Too high: intervene to lower
Nigeria	6.45	6.45	0.0	Too high: intervene to lower
Senegal	7.00	6.06	-0.7	Too high: intervene to lower
Sierra Leone	6.50	6.50	0.0	Too high: intervene to lower
Togo	6.58	6.58	0.0	Satisfactory: intervene to maintain
Asia	5.06	3.03	-2.6	
Eastern Asia	4.41	1.91	-4.2	
China	4.76	1.95	-4.5	Satisfactory: intervene to lower
Democratic People's Republic of Korea	5.70	2.37	-4.4	Satisfactory: intervene to maintain
Hong Kong, China	2.89	1.21	-4.4	..
Japan	2.07	1.50	-1.6	Too low: no intervention
Mongolia	5.80	3.56	-2.4	Satisfactory: intervene to maintain
Republic of Korea	4.11	1.73	-4.3	Satisfactory: intervene to maintain
South-central Asia	5.72	4.12	-1.6	
Afghanistan	7.14	6.90	-0.2	Too high: no intervention
Bangladesh	7.02	4.35	-2.4	Too high: intervene to lower
Bhutan	5.92	5.86	-0.1	Satisfactory: no intervention
India	5.43	3.75	-1.9	Too high: intervene to lower
Iran (Islamic Republic of)	6.54	5.00	-1.3	Too high: intervene to lower
Kazakhstan	3.45	2.50	-1.6	Satisfactory: intervene to maintain
Kyrgyzstan	4.73	3.70	-1.2	Satisfactory: intervene to maintain
Maldives	7.00	6.80	-0.1	Too high: intervene to lower
Nepal	6.26	5.43	-0.7	Too high: intervene to lower
Pakistan	7.00	6.17	-0.6	Too high: intervene to lower
Sri Lanka	4.00	2.48	-2.4	Too high: intervene to lower
Tajikistan	6.83	4.90	-1.7	Too high: intervene to lower
Turkmenistan	6.19	4.00	-2.2	Satisfactory: intervene to maintain
Uzbekistan	6.01	3.90	-2.2	Satisfactory: intervene to maintain
South-eastern Asia	5.32	3.29	-2.4	
Brunei Darussalam	5.40	3.08	-2.8	Satisfactory: no intervention
Cambodia	5.54	5.25	-0.3	Too high: intervene to lower
East Timor	6.15	4.77	-1.3	..
Indonesia	5.10	2.90	-2.8	Too high: intervene to lower

Table A.21 *(continued)*

Major area, region or country	Total fertility rate (per woman) 1970-1975	1990-1995	Annual percentage change, 1970-1975 to 1990-1995	View on fertility and type of intervention to modify fertility
Lao People's Democratic Republic	6.15	6.69	0.4	Satisfactory: intervene to maintain
Malaysia	5.15	3.62	-1.8	Too high: intervene to lower
Myanmar	5.75	4.16	-1.6	Too high: intervene to lower
Philippines	5.50	3.93	-1.7	Too high: intervene to lower
Singapore	2.62	1.73	-2.1	Too low: intervene to raise
Thailand	5.01	2.10	-4.3	Too high: intervene to lower
Viet Nam	5.85	3.87	-2.1	Too high: intervene to lower
Western Asia	5.57	4.41	-1.2	
Armenia	3.04	2.60	-0.8	Satisfactory: intervene to maintain
Azerbaijan	4.29	2.50	-2.7	Satisfactory: intervene to maintain
Bahrain	5.95	3.75	-2.3	Satisfactory: intervene to lower
Cyprus	2.48	2.48	0.0	Too low: intervene to raise
Georgia	2.60	2.10	-1.1	Satisfactory: intervene to maintain
Iraq	7.11	5.70	-1.1	Too low: intervene to raise
Israel	3.77	2.88	-1.3	Too low: intervene to raise
Jordan	7.79	5.57	-1.7	Too high: intervene to lower
Kuwait	6.90	3.10	-4.0	Satisfactory: intervene to maintain
Lebanon	4.92	3.09	-2.3	Satisfactory: no intervention
Oman	7.20	7.20	0.0	Satisfactory: intervene to maintain
Qatar	6.77	4.33	-2.2	Satisfactory: intervene to maintain
Saudi Arabia	7.30	6.37	-0.7	Satisfactory: intervene to maintain
Syrian Arab Republic	7.69	5.90	-1.3	Satisfactory: no intervention
Turkey	5.04	3.35	-2.0	Too high: intervene to lower
United Arab Emirates	6.36	4.24	-2.0	Satisfactory: no intervention
Yemen	7.61	7.60	-0.0	Too high: intervene to lower
Europe	2.14	1.58	-1.5	
Eastern Europe	2.11	1.62	-1.3	
Belarus	2.24	1.65	-1.5	Satisfactory: intervene to raise
Bulgaria	2.17	1.50	-1.8	Too low: intervene to raise
Czech Republic	2.21	1.83	-0.9	Satisfactory: intervene to maintain
Hungary	2.09	1.71	-1.0	Too low: intervene to raise
Poland	2.25	1.88	-0.9	Satisfactory: no intervention
Republic of Moldova	2.56	2.13	-0.9	Satisfactory: intervene to maintain
Romania	2.63	1.50	-2.8	Too low: intervene to raise
Russian Federation	1.98	1.53	-1.3	Too low: no intervention
Slovakia	2.51	1.92	-1.3	Satisfactory: intervene to maintain
Ukraine	2.04	1.64	-1.1	Too low: intervene to raise
Northern Europe	2.08	1.84	-0.6	
Denmark	1.97	1.70	-0.7	Satisfactory: no intervention
Estonia	2.15	1.61	-1.4	Too low: intervene to raise
Finland	1.62	1.85	0.7	Satisfactory: intervene to raise
Iceland	2.84	2.23	-1.2	Satisfactory: no intervention
Ireland	3.80	2.10	-3.0	Satisfactory: intervene to maintain
Latvia	2.00	1.64	-1.0	Too low: intervene to raise
Lithuania	2.31	1.83	-1.2	Satisfactory: intervene to raise

Table A.21 *(continued)*

Major area, region or country	*Total fertility rate (per woman)* 1970-1975	1990-1995	*Annual percentage change, 1970-1975 to 1990-1995*	*View on fertility and type of intervention to modify fertility*
Norway	2.25	1.93	-0.8	Satisfactory: no intervention
Sweden	1.89	2.10	0.5	Satisfactory: no intervention
United Kingdom	2.04	1.81	-0.6	Satisfactory: no intervention
Southern Europe	2.53	1.42	-2.9	
Albania	4.66	2.85	-2.5	Satisfactory: intervene to maintain
Bosnia and Herzegovina	2.63	1.60	-2.5	Satisfactory: intervene to maintain
Croatia	1.96	1.65	-0.9	Too low: intervene to raise
Greece	2.32	1.40	-2.5	Too low: intervene to raise
Italy	2.28	1.27	-2.9	Satisfactory: no intervention
Malta	2.07	2.05	-0.1	Satisfactory: no intervention
Portugal	2.76	1.55	-2.9	Too low: no intervention
Slovenia	2.19	1.46	-2.0	Too low: no intervention
Spain	2.89	1.23	-4.3	Satisfactory: no intervention
The former Yugoslav Republic of Macedonia	2.95	1.97	-2.0	Too high: intervene to lower
Yugoslavia	2.36	2.03	-0.7	Satisfactory: intervene to maintain
Western Europe	1.92	1.51	-1.2	
Austria	2.02	1.53	-1.4	Satisfactory: no intervention
Belgium	1.94	1.64	-0.8	Satisfactory: no intervention
France	2.31	1.74	-1.4	Too low: intervene to raise
Germany	1.64	1.30	-1.2	Too low: no intervention
Luxembourg	1.96	1.65	-0.9	Too low: intervene to raise
Netherlands	1.97	1.61	-1.0	Satisfactory: no intervention
Switzerland	1.81	1.60	-0.6	Too low: no intervention
Latin America and the Caribbean	4.98	3.09	-2.4	
Caribbean	4.37	2.76	-2.3	
Bahamas	2.99	2.00	-2.0	Satisfactory: no intervention
Barbados	2.74	1.83	-2.0	Satisfactory: intervene to maintain
Cuba	3.55	1.82	-3.3	Satisfactory: no intervention
Dominican Republic	5.63	3.09	-3.0	Too high: intervene to lower
Guadeloupe	4.49	2.33	-3.3	..
Haiti	5.76	4.79	-0.9	Too high: intervene to lower
Jamaica	5.00	2.35	-3.8	Too high: intervene to lower
Martinique	4.08	1.95	-3.7	..
Netherlands Antilles	2.65	2.10	-1.2	..
Puerto Rico	3.00	2.18	-1.6	..
Trinidad and Tobago	3.45	2.40	-1.8	Too high: intervene to lower
Central America	6.31	3.52	-2.9	
Belize	6.25	4.18	-2.0	Too high: no intervention
Costa Rica	4.34	3.14	-1.6	Too high: intervene to lower
El Salvador	6.10	4.04	-2.1	Too high: intervene to lower
Guatemala	6.45	5.36	-0.9	Too high: intervene to lower
Honduras	7.05	4.92	-1.8	Too high: intervene to lower
Mexico	6.37	3.21	-3.4	Too high: intervene to lower
Nicaragua	6.79	5.04	-1.5	Too high: intervene to lower
Panama	4.94	2.88	-2.7	Satisfactory: no intervention

Table A.21 *(continued)*

Major area, region or country	*Total fertility rate (per woman)* 1970-1975	1990-1995	*Annual percentage change, 1970-1975 to 1990-1995*	*View on fertility and type of intervention to modify fertility*
South America	4.61	2.97	-2.2	
Argentina	3.15	2.77	-0.6	Satisfactory: no intervention
Bolivia	6.50	4.80	-1.5	Satisfactory: no intervention
Brazil	4.70	2.88	-2.4	Satisfactory: no intervention
Chile	3.63	2.54	-1.8	Satisfactory: intervene to maintain
Colombia	4.67	2.67	-2.8	Satisfactory: no intervention
Ecuador	6.00	3.52	-2.7	Too high: intervene to lower
Guyana	4.90	2.55	-3.3	Satisfactory: no intervention
Paraguay	5.65	4.31	-1.4	Satisfactory: no intervention
Peru	6.00	3.40	-2.8	Too high: intervene to lower
Suriname	5.29	2.68	-3.4	Satisfactory: no intervention
Uruguay	3.00	2.33	-1.3	Too low: intervene to raise
Venezuela	4.94	3.29	-2.0	Satisfactory: intervene to lower
Northern America	2.01	2.06	0.1	
Canada	1.97	1.86	-0.3	Satisfactory: no intervention
United States of America	2.02	2.08	0.2	Satisfactory: no intervention
Oceania	3.21	2.51	-1.2	
Australia-New Zealand	2.58	1.92	-1.5	
Australia	2.53	1.87	-1.5	Satisfactory: no intervention
New Zealand	2.79	2.17	-1.3	Satisfactory: no intervention
Melanesia	5.78	4.68	-1.1	
Fiji	4.20	2.98	-1.7	Too high: intervene to lower
New Caledonia	4.94	2.74	-2.9	..
Papua New Guinea	6.08	5.05	-0.9	Too high: intervene to lower
Solomon Islands	7.23	5.39	-1.5	Too high: intervene to lower
Vanuatu	6.50	4.68	-1.6	Satisfactory: no intervention
Micronesia	5.90	4.36	-1.5	
Guam	4.12	3.24	-1.2	..
Polynesia	6.18	3.74	-2.5	
French Polynesia	5.15	3.21	-2.4	..
Samoa	7.10	4.50	-2.3	Too high: intervene to lower

Sources: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16); and *Global Population Policy Database, 1993* (United Nations publication, Sales No. E.95.XIII.9).

[a] Comprising all regions of Europe and Northern America, Australia-New Zealand and Japan.

[b] Comprising all regions of Africa, Asia (excluding Japan) and Latin America, and regions of Melanesia, Micronesia and Polynesia.

Table A.22. Age pattern of fertility, major areas, regions and countries, 1990-1995

Major area, region or country	Total fertility rate (per woman)	Age-specific fertility rate (per 1,000 women)							Births (thousands)	Percentage of births to women	
		15-19	20-24	25-29	30-34	35-39	40-44	45-49		Under age 20	Aged 35 or over
World total	3.10	59.6	181.4	177.0	111.8	59.3	24.0	7.8	687 422	11	11
More developed regions [a]	1.70	32.0	95.8	111.3	70.8	25.6	4.6	0.3	72 484	9	9
Less developed regions [b]	3.48	65.1	199.8	193.7	124.4	70.8	31.3	10.9	614 938	11	11
Least developed countries	5.80	140.1	275.0	272.6	218.0	148.6	78.7	27.0	114 735	17	14
Africa	5.80	135.7	266.5	272.3	219.0	148.5	82.4	34.5	142 412	17	15
Eastern Africa	6.47	150.9	304.9	298.7	242.1	165.9	97.0	34.4	48 686	17	14
Burundi	6.80	59.8	251.6	301.9	278.8	225.8	133.3	108.8	1 367	7	24
Comoros	7.05	166.4	339.8	337.0	262.3	197.4	86.0	21.1	145	18	13
Djibouti	5.80	31.3	150.8	261.0	309.7	249.4	117.2	40.6	104	4	26
Eritrea	5.80	140.3	288.0	277.0	230.8	118.1	78.3	27.5	712	17	12
Ethiopia	7.00	169.4	343.0	329.0	281.4	144.2	98.0	35.0	12 419	17	13
Kenya	6.28	143.9	316.2	307.4	230.1	155.0	77.7	25.3	5 772	18	12
Madagascar	6.10	155.1	281.6	283.7	222.3	180.1	80.9	16.3	2 997	18	15
Malawi	7.20	172.8	316.8	299.4	269.1	203.4	121.0	57.5	2 588	18	17
Mauritius	2.35	46.1	149.9	137.2	82.3	41.4	11.8	1.4	113	11	10
Mozambique	6.50	131.3	306.8	279.5	196.3	176.8	159.9	49.4	3 411	15	20
Réunion	2.32	67.3	150.8	128.1	76.1	33.4	7.9	0.5	66	15	7
Rwanda	6.55	60.2	251.2	364.1	285.3	201.2	112.0	36.1	1 648	8	17
Somalia	7.00	208.3	330.7	306.9	249.7	177.6	99.4	27.4	2 252	21	14
Uganda	7.30	220.1	319.4	308.6	270.8	220.5	91.1	29.4	5 085	22	14
United Republic of Tanzania	5.90	133.8	284.7	273.0	211.3	155.0	91.0	31.3	5 963	17	14
Zambia	5.98	144.5	290.3	273.8	217.5	163.5	83.0	23.3	1 963	18	13
Zimbabwe	5.01	101.6	249.8	249.8	188.5	127.7	61.7	23.7	2 067	14	13
Middle Africa	6.45	206.5	304.8	271.4	229.5	163.3	88.5	26.0	17 611	23	14
Angola	7.20	236.4	338.8	301.3	256.5	182.0	103.8	21.2	2 601	23	13
Cameroon	5.70	140.7	272.1	253.2	213.7	159.6	81.3	19.5	2 518	18	15
Central African Republic	5.69	160.5	251.5	240.1	202.6	138.8	60.3	84.2	648	20	17
Chad	5.89	192.0	293.3	260.3	202.6	137.8	73.0	18.8	1 303	22	13
Congo	6.29	145.9	264.2	283.0	254.1	186.2	94.4	30.2	539	17	16
Democratic Republic of the Congo (formerly Zaire)	6.70	230.5	316.2	274.7	234.5	166.2	92.5	25.5	9 662	25	13
Equatorial Guinea	5.89	192.0	293.3	260.3	202.6	137.8	73.0	18.8	82	22	14
Gabon	5.34	162.8	270.1	225.9	184.0	129.7	73.9	21.5	230	18	17
Northern Africa	4.19	59.9	187.0	236.3	178.5	112.0	49.7	14.4	23 732	10	15
Algeria	3.85	29.9	154.7	233.8	171.8	120.0	52.3	7.6	3 849	6	15
Egypt	3.88	73.0	204.7	221.5	150.5	86.1	31.2	9.0	8 738	12	13
Libyan Arab Jamahiriya	6.39	109.5	279.3	312.6	272.1	189.7	95.0	19.9	1 042	14	16
Morocco	3.75	37.1	138.1	210.9	166.8	113.6	59.2	24.3	3 738	7	18

Table A.22 *(continued)*

Major area, region or country	Total fertility rate (per woman)	Age-specific fertility rate (per 1,000 women)							Births (thousands)	Percentage of births to women	
		15-19	20-24	25-29	30-34	35-39	40-44	45-49		Under age 20	Aged 35 or over
Sudan	5.74	88.4	233.8	290.0	259.2	167.4	84.0	25.2	5 240	12	17
Tunisia	3.15	23.0	127.7	209.4	151.7	81.9	30.8	5.5	1 085	5	13
Southern Africa	4.21	74.8	197.9	216.6	164.9	98.0	62.5	27.5	7 154	12	16
Botswana	4.85	100.2	208.2	244.6	192.3	131.6	64.9	27.5	256	15	15
Lesotho	5.20	85.0	239.4	249.3	217.2	150.2	70.9	27.9	354	12	17
Namibia	5.25	107.1	202.6	236.2	202.6	162.7	102.9	35.7	267	15	20
South Africa	4.09	72.1	194.9	212.9	159.7	91.7	60.6	27.0	6 123	12	16
Swaziland	4.86	78.9	217.9	235.2	194.1	138.8	69.7	36.6	154	12	15
Western Africa	6.54	164.2	290.0	288.6	240.0	171.2	98.9	55.9	45 228	18	16
Benin	7.10	151.9	315.2	330.9	278.3	193.1	99.4	51.1	1 224	16	16
Burkina Faso	6.50	165.1	325.0	284.7	241.8	170.3	92.3	20.8	2 259	18	14
Cape Verde	4.26	22.1	171.9	271.1	186.1	127.4	57.0	16.4	66	3	12
Côte d'Ivoire	7.41	228.2	355.7	326.0	262.3	183.8	100.8	25.2	3 269	23	13
Gambia	5.60	170.8	268.6	261.9	191.7	133.7	63.6	29.7	223	19	14
Ghana	5.96	127.0	248.4	266.6	223.1	165.3	112.0	50.5	3 386	16	18
Guinea	7.00	240.8	334.6	310.8	246.4	170.8	68.6	28.0	1 577	24	12
Guinea-Bissau	5.79	188.8	291.8	254.8	198.0	134.3	71.8	18.5	217	21	14
Liberia	6.80	229.8	281.5	289.7	253.0	186.3	88.4	31.3	664	24	14
Mali	7.10	198.8	306.7	285.4	276.9	191.7	115.0	45.4	2 539	20	15
Mauritania	5.40	132.6	237.7	257.5	206.5	140.9	69.2	35.7	425	18	15
Niger	7.40	219.0	340.4	331.5	254.6	190.9	102.1	41.4	2 218	22	14
Nigeria	6.45	149.6	278.6	286.4	237.4	169.0	99.3	69.7	23 582	17	17
Senegal	6.06	155.1	273.9	256.9	215.7	151.5	99.4	59.4	1 680	19	16
Sierra Leone	6.50	211.9	321.1	287.3	224.9	152.1	81.9	20.8	1 045	22	13
Togo	6.58	126.3	275.0	275.0	247.4	206.6	111.9	73.7	854	15	20
Asia	3.03	45.3	185.8	182.7	108.0	56.0	21.8	7.0	417 929	9	10
Eastern Asia	1.91	13.8	159.5	133.8	55.0	15.1	4.4	1.0	123 218	3	4
China	1.95	15.1	171.2	132.3	51.2	14.4	4.7	1.2	109 938	4	4
Democratic People's Republic of Korea	2.37	12.3	131.6	172.3	109.4	40.2	7.6	0.0	2 751	3	7
Hong Kong, China	1.21	5.8	37.5	92.2	75.0	26.9	4.4	0.2	323	2	13
Japan	1.50	3.6	44.4	138.0	91.2	20.4	2.4	0.0	6 258	1	8
Mongolia	3.56	36.8	205.4	198.4	136.1	92.5	33.3	9.5	317	7	13
Republic of Korea	1.73	6.2	123.5	163.7	45.3	6.6	0.7	0.0	3 598	2	2
South-central Asia	4.12	72.6	222.9	237.2	151.5	89.2	38.0	12.4	206 320	11	12
Afghanistan	6.90	153.2	329.8	336.7	274.6	182.2	86.9	16.6	4 414	15	13
Bangladesh	4.35	132.8	242.7	226.1	141.8	85.3	34.0	8.3	20 276	20	9
Bhutan	5.86	62.6	220.7	267.5	230.9	201.5	121.3	67.5	315	8	25

Table A.22 *(continued)*

Major area, region or country	Total fertility rate (per woman)	Age-specific fertility rate (per 1,000 women)							Births (thousands)	Percentage of births to women	
		15-19	20-24	25-29	30-34	35-39	40-44	45-49		Under age 20	Aged 35 or over
India	3.75	64.4	215.5	227.1	135.6	71.3	27.5	7.8	129 941	11	10
Iran (Islamic Republic of)	5.00	89.9	218.5	269.5	202.9	138.8	64.7	15.7	11 188	13	15
Kazakhstan	2.50	34.5	184.0	147.0	82.5	39.0	12.0	1.0	1 676	8	9
Kyrgyzstan	3.70	37.0	242.7	222.0	133.2	72.5	28.1	4.4	661	6	11
Maldives	6.80	70.7	253.0	307.4	266.6	236.6	144.2	81.6	49	8	24
Nepal	5.42	104.2	298.4	260.4	199.6	137.8	64.0	20.6	4 036	14	14
Pakistan	6.17	63.7	237.6	309.9	246.8	200.3	113.9	61.5	26 849	7	21
Sri Lanka	2.48	33.2	128.5	142.4	106.6	62.5	20.3	2.5	1 844	8	14
Tajikistan	4.90	34.3	281.3	273.4	197.0	126.4	56.8	10.8	1 048	5	12
Turkmenistan	4.00	18.4	203.2	262.4	172.0	97.6	40.8	5.6	619	3	12
Uzbekistan	3.90	34.3	256.6	232.4	147.4	77.2	28.1	3.9	3 403	5	9
South-eastern Asia	3.29	47.3	162.4	180.9	138.5	87.2	33.0	9.4	63 091	9	14
Brunei Darussalam	3.07	26.0	129.2	207.5	140.3	82.9	23.7	5.3	33	5	16
Cambodia	5.25	131.3	286.8	273.7	190.8	109.5	42.2	15.6	2 078	13	11
East Timor	4.77	47.4	202.3	257.9	226.4	147.8	62.5	8.9	142	5	16
Indonesia	2.90	64.4	154.9	150.2	111.9	69.6	22.0	7.0	23 533	14	12
Lao People's Democratic Republic	6.69	50.8	267.6	314.4	275.6	243.5	132.4	53.5	1 026	6	23
Malaysia	3.62	29.0	160.4	231.5	168.6	97.9	33.1	3.5	2 734	5	14
Myanmar	4.16	32.4	174.0	231.4	203.9	130.4	52.6	6.7	7 181	5	16
Philippines	3.93	27.9	168.1	227.7	194.9	118.1	44.6	5.3	9 769	5	16
Singapore	1.73	8.3	63.3	130.8	99.6	37.4	6.2	0.0	221	2	13
Thailand	2.10	52.5	128.1	108.8	66.4	43.3	16.4	4.6	5 548	14	11
Viet Nam	3.87	17.8	180.2	221.2	162.4	109.8	53.4	28.6	10 827	3	16
Western Asia	4.41	65.1	205.6	239.6	172.7	121.0	57.5	21.2	25 299	10	16
Armenia	2.60	61.4	238.7	133.6	60.3	20.8	4.7	0.5	360	12	5
Azerbaijan	2.50	21.0	173.0	168.0	90.0	36.5	10.5	1.0	826	4	7
Bahrain	3.75	24.8	161.2	213.7	169.5	103.5	51.8	25.5	74	3	18
Cyprus	2.48	36.2	169.6	160.2	92.3	31.2	6.0	0.5	67	7	7
Georgia	2.10	50.8	169.7	115.1	55.9	22.7	5.5	0.4	432	12	7
Iraq	5.70	49.0	199.5	273.6	270.2	216.6	95.8	35.3	3 669	7	21
Israel	2.88	20.0	133.9	190.7	140.3	71.9	17.4	1.9	545	4	15
Jordan	5.57	48.5	221.3	308.7	261.0	179.9	74.9	19.8	942	7	14
Kuwait	3.10	40.9	158.1	189.1	130.8	77.5	19.2	4.3	223	8	13
Lebanon	3.09	32.1	133.0	193.6	139.0	79.3	33.2	6.9	374	6	13
Oman	7.20	122.4	339.8	368.6	313.9	188.6	86.4	20.2	427	14	14
Qatar	4.33	66.0	265.5	274.4	155.7	71.5	25.5	7.4	54	9	14
Saudi Arabia	6.37	123.6	201.3	248.4	234.4	244.6	184.7	36.9	2 977	17	25
Syrian Arab Republic	5.90	109.8	273.1	295.2	229.4	165.4	83.1	23.8	2 776	14	13

Table A.22 *(continued)*

Major area, region or country	Total fertility rate (per woman)	Age-specific fertility rate (per 1,000 women)							Births (thousands)	Percentage of births to women	
		15-19	20-24	25-29	30-34	35-39	40-44	45-49		Under age 20	Aged 35 or over
Turkey	3.35	42.9	180.7	222.6	128.2	73.6	17.4	4.5	8 044	8	10
United Arab Emirates	4.24	84.3	220.7	210.5	168.4	94.0	51.9	18.2	207	11	18
Yemen	7.60	101.8	279.7	305.5	285.8	253.8	171.8	121.6	3 189	11	23
Europe	1.58	26.5	97.9	101.7	62.3	23.2	4.7	0.3	42 056	8	9
Eastern Europe	1.62	38.2	132.4	88.5	44.4	17.5	3.8	0.2	17 818	12	7
Belarus	1.65	28.1	140.2	95.4	45.2	16.8	4.0	0.3	611	8	7
Bulgaria	1.50	59.1	138.3	68.1	24.9	8.1	1.5	0.0	459	21	3
Czech Republic	1.83	45.8	172.4	99.6	35.9	10.6	1.8	0.0	667	14	4
Hungary	1.71	41.0	137.1	106.0	42.1	14.4	1.4	0.0	597	14	5
Poland	1.88	28.2	150.4	113.6	54.9	22.9	6.0	0.0	2 518	8	9
Republic of Moldova	2.13	38.3	162.7	124.4	65.6	28.5	6.0	0.4	351	10	9
Romania	1.50	40.8	115.2	80.7	40.5	17.7	4.8	0.3	1 303	15	7
Russian Federation	1.53	37.3	122.1	81.4	43.8	17.4	3.7	0.3	8 001	12	8
Slovakia	1.92	44.2	172.4	107.5	43.0	14.6	2.3	0.0	378	13	5
Ukraine	1.64	42.6	137.1	86.3	42.6	16.1	3.3	0.0	2 934	13	6
Northern Europe	1.84	27.1	91.8	124.5	86.6	32.3	5.6	0.3	6 252	6	10
Denmark	1.70	10.2	79.9	138.4	82.6	25.2	3.7	0.0	322	3	8
Estonia	1.61	33.5	132.3	87.9	45.4	19.0	3.9	0.0	86	10	8
Finland	1.85	12.6	74.4	137.6	98.8	38.5	7.8	0.4	330	3	14
Iceland	2.23	29.0	108.8	140.0	108.8	50.8	8.5	0.0	23	6	12
Ireland	2.10	16.0	60.9	141.1	123.1	63.4	14.7	0.8	259	5	18
Latvia	1.64	35.1	133.2	86.9	47.6	20.0	4.9	0.3	150	10	8
Lithuania	1.83	31.5	154.1	104.7	49.8	20.5	5.1	0.4	250	8	7
Norway	1.93	18.9	98.0	144.7	90.3	28.9	4.6	0.4	306	4	8
Sweden	2.10	12.8	96.9	157.7	107.3	38.5	6.6	0.3	612	3	11
United Kingdom	1.81	32.6	88.0	118.7	85.8	31.5	5.1	0.4	3 897	8	9
Southern Europe	1.42	16.8	72.9	98.5	64.2	24.7	5.5	0.4	7 762	6	10
Albania	2.85	14.3	153.9	197.8	125.4	58.1	17.7	2.9	400	3	10
Bosnia and Herzegovina	1.60	33.3	118.4	97.0	48.6	18.2	4.2	0.3	261	9	7
Croatia	1.65	31.7	131.7	103.0	45.5	15.2	2.6	0.3	254	9	6
Greece	1.40	22.4	86.8	94.6	52.6	19.6	3.6	0.3	513	8	8
Italy	1.27	9.1	56.6	91.9	65.3	25.7	5.1	0.3	2 792	3	11
Malta	2.05	11.5	84.1	159.9	100.4	42.6	11.1	0.4	26	3	14
Portugal	1.55	25.1	85.3	102.6	64.8	25.4	6.2	0.6	593	8	9
Slovenia	1.45	29.7	121.6	87.3	36.1	13.1	2.9	0.3	102	10	6
Spain	1.23	12.1	47.7	90.0	65.2	24.6	5.9	0.5	1 905	5	11
The former Yugoslav Republic of Macedonia	1.97	41.0	152.9	123.7	53.6	18.1	4.3	0.4	163	10	6

Table A.22 *(continued)*

Major area, region or country	Total fertility rate (per woman)	Age-specific fertility rate (per 1,000 women)							Births (thousands)	Percentage of births to women	
		15-19	20-24	25-29	30-34	35-39	40-44	45-49		Under age 20	Aged 35 or over
Yugoslavia	2.03	42.6	147.4	124.2	60.9	24.0	6.5	0.8	747	11	8
Western Europe	1.51	11.0	65.5	112.7	79.4	28.5	5.3	0.3	10 224	3	11
Austria	1.53	22.9	88.4	106.8	61.2	22.6	3.7	0.3	466	6	8
Belgium	1.64	9.5	81.3	141.7	70.8	20.7	3.6	0.3	606	2	8
France	1.74	8.7	73.1	135.0	89.1	34.5	7.3	0.3	3 708	2	12
Germany	1.30	13.3	60.3	92.3	66.3	23.4	4.2	0.3	3 984	4	10
Luxembourg	1.65	12.9	72.3	125.7	87.1	27.7	4.0	0.3	25	3	10
Netherlands	1.61	7.4	44.1	118.2	112.1	35.4	4.5	0.3	989	2	12
Switzerland	1.60	5.4	50.9	121.9	101.4	34.9	5.1	0.3	442	1	12
Latin America and the Caribbean	3.09	79.0	173.1	156.4	110.9	66.4	27.6	5.3	59 806	15	11
Caribbean	2.76	77.9	152.9	138.2	94.7	56.6	23.8	7.5	4 069	16	11
Bahamas	2.00	53.8	107.2	107.7	80.6	40.1	9.4	1.1	25	14	9
Barbados	1.83	53.5	102.7	98.1	71.6	31.8	7.2	1.1	21	15	9
Cuba	1.82	92.4	122.5	83.1	43.0	17.3	4.1	1.6	913	23	4
Dominican Republic	3.09	91.2	180.4	161.2	103.5	57.3	19.5	5.8	1 008	18	9
Guadeloupe	2.33	39.2	122.6	147.0	94.8	45.9	15.0	1.4	42	9	11
Haiti	4.79	53.9	192.1	232.7	204.3	152.7	89.3	33.0	1 206	8	21
Jamaica	2.35	85.5	128.8	109.5	78.0	47.5	17.9	2.8	261	20	9
Martinique	1.95	31.1	95.4	124.8	85.0	41.6	10.8	1.3	32	8	11
Netherlands Antilles	2.10	33.6	102.5	134.4	91.6	44.9	11.8	1.3	18	8	12
Puerto Rico	2.18	65.0	141.3	126.9	68.5	27.9	6.5	0.0	321	17	7
Trinidad and Tobago	2.40	60.3	143.1	142.6	81.1	41.9	10.7	0.3	133	14	8
Central America	3.52	89.0	193.8	180.8	125.6	75.2	31.4	7.7	17 762	17	10
Belize	4.18	126.8	253.1	203.7	133.0	83.9	31.2	4.3	35	21	7
Costa Rica	3.14	93.1	173.4	155.1	113.6	67.8	22.9	2.4	425	17	11
El Salvador	4.04	131.3	227.6	187.5	134.1	85.4	38.5	3.2	915	24	9
Guatemala	5.36	123.0	262.2	261.7	212.0	141.7	60.9	10.5	1 916	17	13
Honduras	4.92	126.5	252.2	219.1	178.9	124.5	67.7	14.3	976	18	13
Mexico	3.21	77.2	180.9	170.2	113.4	65.1	26.7	7.6	12 361	15	10
Nicaragua	5.04	153.4	255.7	242.0	181.0	120.3	45.1	10.3	820	21	10
Panama	2.88	90.7	166.9	147.3	98.3	51.2	18.2	4.3	314	18	9
South America	2.97	74.8	166.7	149.4	107.7	64.6	26.8	4.3	37 975	15	12
Argentina	2.77	60.9	150.9	158.8	108.9	56.8	16.2	2.1	3 419	14	12
Bolivia	4.80	82.4	227.7	236.7	189.3	132.5	69.8	21.6	1 247	12	16
Brazil	2.88	77.5	168.5	140.5	100.6	60.1	26.5	2.7	19 097	16	12
Chile	2.54	55.7	149.1	148.0	95.3	46.5	12.0	1.0	1 502	11	9
Colombia	2.67	70.9	149.6	134.3	93.4	55.7	23.7	5.6	4 039	15	11

Table A.22 *(continued)*

Major area, region or country	Total fertility rate (per woman)	Age-specific fertility rate (per 1,000 women) 15-19	20-24	25-29	30-34	35-39	40-44	45-49	Births (thousands)	Percentage of births to women Under age 20	Aged 35 or over
Ecuador	3.52	79.4	175.5	169.0	132.4	90.6	44.8	11.5	1 534	15	14
Guyana	2.55	60.9	156.1	152.0	83.7	44.0	12.2	0.4	103	13	7
Paraguay	4.31	92.2	198.9	200.0	177.8	124.2	58.4	10.1	765	14	16
Peru	3.40	59.5	168.1	170.1	138.0	94.6	40.1	10.5	3 101	12	15
Suriname	2.68	62.3	162.4	160.7	88.2	47.3	14.9	0.0	52	13	6
Uruguay	2.33	60.4	131.3	127.1	86.2	45.9	14.0	1.1	268	15	11
Venezuela	3.29	101.4	181.1	161.6	115.7	67.9	25.5	5.7	2 831	19	11
Northern America	2.06	60.0	112.9	120.0	80.7	31.8	5.3	0.4	22 578	13	10
Canada	1.86	27.2	87.0	134.7	89.7	29.4	4.1	0.0	2 156	6	9
United States of America	2.08	63.6	115.9	118.4	79.7	32.1	5.5	0.4	20 411	13	10
Oceania	2.51	28.3	111.0	162.7	118.5	53.1	20.0	7.5	2 642	6	14
Australia-New Zealand	1.92	23.7	83.1	141.2	97.7	32.8	5.2	0.1	1 594	6	10
Australia	1.87	21.3	79.3	139.1	96.5	32.5	5.2	0.0	1 294	5	10
New Zealand	2.17	35.2	102.0	152.3	104.6	34.3	5.2	0.4	300	8	9
Melanesia	4.68	32.5	176.3	222.9	200.0	151.8	101.1	51.7	883	5	24
Fiji	2.98	36.3	168.5	187.6	116.3	62.0	21.0	4.3	89	8	11
New Caledonia	2.74	53.2	158.9	150.2	103.6	56.4	21.9	3.8	20	12	11
Papua New Guinea	5.05	23.2	169.8	227.4	222.4	176.9	124.3	66.7	680	4	27
Solomon Islands	5.39	99.1	247.2	267.1	217.0	151.9	71.3	24.2	65	14	14
Vanuatu	4.68	74.9	224.6	237.7	187.2	132.0	58.0	21.5	28	10	15
Micronesia	4.36	64.4	217.7	239.6	188.2	113.4	42.5	5.8	75	10	12
Guam	3.24	88.1	208.0	171.7	110.2	55.1	13.6	1.3	19	13	9
Polynesia	3.74	79.6	218.7	214.2	138.3	74.7	20.0	3.1	90	14	7
French Polynesia	3.20	76.9	191.7	173.1	118.6	63.5	15.4	1.9	28	14	9
Samoa	4.50	80.3	241.0	258.0	167.1	103.6	40.7	9.2	31	14	5

Sources: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

[a] Comprising all regions of Europe and Northern America, Australia-New Zealand and Japan.

[b] Comprising all regions of Africa, Asia (excluding Japan) and Latin America, and regions of Melanesia, Micronesia and Polynesia.

Table A.23. Trends in percentage of married women[a] using contraception, major areas, regions and countries, based on most recent survey data available, 1975 or later

Major region, subregion and country or area	Level of current contraceptive use: Year	Age range	Percentage using: Any method	Modern[b] method	Trends (percentage): Time period	Annual increase using: Any method	Modern[b] method
World total	1991[c]	15-49	57	49			
More developed regions[a]			71	51			
Less developed regions[b]			53	49			
Least developed countries			20	15			
Africa			19	15			
Eastern Africa							
Burundi	1987	15-49	9	1			
Ethiopia	1990	15-49[d]	4	3			
Kenya	1993	15-49	33	27	1984-1993	1.7	1.9
Madagascar	1992	15-49	17	5			
Malawi	1992	15-49	13	7	1984-1992	0.7	0.8
Mauritius	1991	15-44	75	49	1985-1991	-0.8	0.1
Réunion	1990	15-49[e]	67	62			
Rwanda	1992	15-49	21	13	1983-1992	1.3	1.4
Uganda	1988/89	15-49	5	3			
United Republic of Tanzania	1994	15-49	20	13	1991-1994	3.7	2.4
Zambia	1992	15-49	15	9			
Zimbabwe	1994	15-49	48	42	1984-1994	1.0	1.6
Middle Africa							
Cameroon	1991	15-49	16	4	1978-1991	1.0	0.3
Central African Republic	1994/95	15-49	24[f]	4[f]			
Democratic Republic of the Congo (formerly Zaire)	1991	12-49	8	2			
Northern Africa							
Algeria	1992	15-49	47	43	1986-1992	2.0	2.1
Egypt	1992	15-49	46[g]	45	1980-1992	1.7	1.7
Morocco	1995	15-49	50[f]	42[f]	1983-1995	2.2	1.8
Sudan (north)	1993	15-49	8[f,g]	7[f]	1979-1993	0.3	0.2
Tunisia	1994	15-49	60[f]	51[f]	1983-1994	1.8	1.6
Southern Africa							
Botswana	1988	15-49	33	32	1984-1988	1.2	3.0
Lesotho	1991/92	15-49[h]	23[f]	19[f]	1977-1992	1.3[i]	1.2[i]
Namibia	1992	15-49	29	26			
South Africa	1987/89	< 50	50	48	1976-1988	1.0	1.1
Swaziland	1988	15-49[j]	20	17			
Western Africa							
Benin	1981/82	15-49	9[k]	0.5			
Burkina Faso	1993	15-49	8[l]	4			
Côte d'Ivoire	1980/81	15-49	3	0.5			
Gambia	1990	15-49	12	7			
Ghana	1993/94	15-49	20	10	1979-1994	0.8	0.3
Guinea	1992/93	15-49	2	1			
Liberia	1986	15-49	6	5			
Mali	1987	15-49	5	1			
Mauritania	1990	15-49	3[g]	1	1981-1990	0.3	0.1
Niger	1992	15-49	4	2			
Nigeria	1990	15-49	6	4	1982-1990	0.1	0.4
Senegal	1992/93	15-49	7	5	1986-1993	-0.6	0.4
Togo	1988	15-49	12[l]	3			

Table A.23 (*continued*)

Major region, subregion and country or area	Level of current contraceptive use: Year	Age range	Percentage using: Any method	Modern[b] method	Trends (percentage): Time period	Annual increase using: Any method	Modern[b] method
Asia			58	54			
Eastern Asia							
China	1992	15-49	83	83	1982-1992	1.3	1.6
Hong Kong, China	1992	15-49	86	80	1982-1992	1.4	1.6
Japan	1994	< 50	59	53[m]	1984-1994	0.1	0.2
Republic of Korea	1991	15-44	79	70	1979-1991	2.0	2.2
South-central Asia							
Bangladesh	1994	< 50	46[f]	39[f]	1983-1994	2.5	2.3
India	1992/93	15-49	41	36	1980-1993	0.5	0.8
Iran (Islamic Republicof)	1992	15-44	65	45	1977-1992	1.9[i]	..
Kazakhstan	1995	15-49	59[f]	47[f]			
Nepal	1991	15-49	23	22	1981-1991	1.5	1.4
Pakistan	1990/91	15-49	12	9	1980-1991	0.8	..
Sri Lanka	1993	15-49[n]	66	44	1982-1993	0.7	1.0
South-eastern Asia							
Indonesia	1994	15-49	55	52	1987-1994	1.0	1.2
Lao People's Democratic Republic	1993	15-49	19	15			
Malaysia (Peninsular)	1988	15-49	48	31	1974-1988	1.1	0.6
Myanmar	1992	15-49	17[f]	14[f]			
Philippines	1993	15-49	40	25	1983-1993	1.0	0.7
Singapore	1982	15-44	74	..	1973-1982	1.6	2.3
Thailand	1993	15-49	74	72	1984-1992	1.0	1.1
Viet Nam	1994	15-49	65	44	1988-1994	1.9	1.4
Western Asia							
Bahrain	1989	< 50[p]	53[g]	30			
Iraq	1989	< 50[p]	14[f,g]	10	1974-1989[p]	-0.1	-0.2
Jordan	1990	15-49	35	27	1976-1990	0.7	0.7
Kuwait	1987	< 50[p]	35	32			
Oman	1988/89	< 50[p]	9	8			
Qatar	1987	< 50	32[f]	29[f]			
Syrian Arab Republic	1993	15-49	36[g]	28	1978-1993	1.1	0.9
Turkey	1993	15-49	63	34	1983-1993	1.2	1.2
Yemen	1991/92	15-49	7[g]	6			
Europe			72	45			
Eastern Europe							
Belarus	1995	18-34	50	42			
Bulgaria	1976	15-44[r]	76	8			
Czech Republic	1993	15-44	69	45			
Hungary	1993	15-44	73	64	1977-1993	0.0	0.8
Poland	1977	< 45	75[s]	26[s]	1972-1977	3.0	2.6
Romania	1993	15-44	57[f]	14[f]	1978-1993	0.0	0.6
Slovakia	1991	15-44[aa]	74	41			
Northern Europe							
Denmark	1988	15-44	78	72	1975-1988	1.2[i]	0.9[i]
Estonia	1994	20-49[aa]	70	56			
Finland	1977	18-44	80	78	1971-1977	0.6	4.4
Norway	1988	..	76	72[m]	1977-1988	0.4[i]	0.6[i]
Sweden	1981	20-44[aa]	78	71			
United Kingdom	1993	16-49	82	..	1986-1993	0.1	..
Southern Europe							
Italy	1979	18-44[r]	78[v]	32[v]			
Portugal	1979/80	15-49	66	33			
Spain	1985	18-49	59	38	1977-1985	1.1[i]	2.4[i]
Yugoslavia, SFR[w]	1976	15-44[r]	55[s]	12[s]	1970-1976	-0.7	0.3

Table A.23 (*continued*)

Major region, subregion and country or area	Level of current contraceptive use: Year	Age range	Percentage using: Any method	Modern[b] method	Trends (percentage): Time period	Annual increase using: Any method	Modern[b] method
Western Europe							
Austria	1981/82	..[x]	71	56			
Belgium[y]	1991	20-40	79	75	1982-1991	-0.1	1.2
France	1994	20-49	75	68	1978-1994	-0.1	1.4
Germany	1992	20-39	75	72			
Netherlands	1993	18-43	80	77	1982-1993	0.1	0.2
Switzerland	1980	[z]	71	65			
Latin America and the Caribbean			59	49			
Caribbean							
Antigua	1988	15-44[e]	53	51	1981-1988	2.0	2.0
Bahamas	1988	15-44[e]	62	60			
Barbados	1988	15-44[e]	55	53	1980-1988	1.0	1.0
Cuba	1987	15-49	70	67			
Dominica	1987	15-44[e]	50	48	1981-1987	0.1	0.2
Dominican Republic	1991	15-49	56	52	1980-1991	1.2	1.4
Grenada	1990	15-44[e]	54	..	1985-1990	4.7	..
Guadeloupe	1976	15-44[e]	44	31			
Haiti	1994	15-49[e]	18	14	1983-1994	1.0	0.8
Jamaica	1993	15-44[e]	62	58	1983-1993	1.0	0.9
Martinique	1976	15-44[e]	51	38			
Montserrat	1984	15-44[aa]	53	52			
Puerto Rico	1982	15-44	70	62	1968-1982	0.3	0.5
Saint Kitts and Nevis	1984	15-44[aa]	41	37			
Saint Lucia	1988	15-44[e]	47	46	1981-1988	0.7	0.8
Saint Vincent and the Grenadines	1988	15-44[e]	58	55	1981-1988	2.4	2.2
Trinidad and Tobago	1987	15-49[e]	53	44	1977-1987	0.1	-0.1
Central America							
Belize	1991	15-44[e]	47	42			
Costa Rica	1992/93	15-49	75	65	1981-1993	0.8	0.7
El Salvador	1993	15-44	53	48	1985-1993	0.6[i]	0.4[i]
Guatemala	1987	15-44	23	19	1978-1987	0.6	0.4
Honduras	1991/92	15-44	47	35	1981-1992	1.8	1.0
Mexico	1987	15-49	53	45	1976-1987	2.1	2.0
Nicaragua	1992	15-49	49	45	1981-1992	1.9[i]	1.9[i]
Panama	1984/85	15-44	58[bb]	54	1976-1985	0.7	1.1
South America							
Bolivia	1993/94	15-49	45	18	1983-1994	1.8	0.5
Brazil	1986	15-44	66	57			
Colombia	1990	15-49	66	55	1980-1990	1.8	1.4
Ecuador	1994	15-49	57	46	1982-1994	1.4	1.1
Guyana	1975	15-49[e]	31	28			
Paraguay	1990	15-49	48	35	1979-1990	1.1	1.1
Peru	1991/92	15-49	59	33	1981-1992	1.8	1.5
Venezuela	1977	15-44	49	38			
Northern America			71	67			
Canada	1984	18-49	73	70			
United States of America	1990	15-44	71	67	1982-1990	0.3	0.6
Oceania							
Australia	1986	20-49	76	72			
New Zealand	1976	[cc]	70	62			

Table A.23 (*continued*)

NOTE: This table shows the most recent data available as of 1 April 1996. Information about contraceptive use is taken mainly from representative sample surveys of women of reproductive age. Data pertain to married couples, including, where possible, those in consensual unions. World and regional average levels of current contraceptive use were derived by the Population Division of the United Nations Secretariat, based on survey data shown and assumptions about patterns of use in countries for which no information was available. Further information about data sources and estimates is given in *Levels and Trends of Contraceptive Use as Assessed in 1994* (United Nations publication, Sales No. E.96.XIII.13).

[a]Including consensual unions, where possible.

[b]Modern or clinic and supply methods include male and female sterilization, intrauterine devices (IUDs), the pill, injectables, hormonal implants, condoms and female barrier methods.

[c]Population-weighted average date of recent surveys.

[d]Excluding Eritrea, Tigrai, Asseb, Ogaden, parts of Gondar and Wello, and the nomadic population.

[e]Including visiting unions.

[f]*Preliminary or provisional.*

[g]Adjusted from source to exclude breastfeeding.

[h]For all women of ages specified.

[i]Trend may be affected by differences in the base population or geographical coverage at the two dates.

[j]Including never-married women who have a child.

[k]Not counting as users of contraception women who have not resumed sexual relations since last pregnancy.

[l]Excluding prolonged abstinence: 17 per cent in Burkina Faso; 22 per cent in Togo.

[m]Some women reporting more than one method; figure shown assumes that modern methods were not used in combination with other modern methods.

[n]Excluding areas containing roughly 15 per cent of the population.

[o]Not a nationally representative sample; national prevalence level is probably lower than indicated.

[p]Households of nationals of the country.

[q]Excluding the West Bank.

[r]Women in first marriage.

[s]Excluding sterilization.

[t]Women currently married or cohabiting who were born in 1945, 1950, 1955, 1960, 1965 or 1968.

[u]Data pertaining to Great Britain.

[v]Use since last pregnancy (since marriage, if no pregnancy).

[w]The former Socialist Federal Republic of Yugoslavia.

[x]Marriage cohorts of 1974 and 1977.

[y]Flemish population.

[z]Sample of husbands and wives married between 1970 and 1979.

[aa]All sexually active women.

[bb]Excluding douche, abstinence and folk methods.

[cc]Married women aged 15 or over who considered they were at risk for pregnancy.

Table A.24. Trends in life expectancy at birth, major areas, regions and countries, 1970-1995

Major area, region or country	Life expectancy at birth (years) 1970-1975 Male	Female	Both sexes	1990-1995 Male	Female	Both sexes	Change (in years) between 1970-1975 and 1990-1995 Male	Female	Both sexes
World total	56.4	59.4	57.9	62.4	66.5	64.4	6.0	7.1	6.5
More developed regions [a]	67.6	74.7	71.2	70.6	78.1	74.4	3.0	3.4	3.2
Less developed regions [b]	53.9	55.4	54.6	60.8	63.8	62.3	7.0	8.4	7.6
Least developed countries	42.8	44.5	43.6	50.1	52.3	51.2	7.3	7.8	7.5
Africa	44.5	47.6	46.0	51.5	54.6	53.0	7.0	7.0	7.0
Eastern Africa	43.2	46.4	44.8	48.2	51.1	49.7	5.0	4.7	4.9
Burundi	42.4	45.6	44.0	48.4	51.9	50.2	6.0	6.3	6.2
Comoros	47.0	48.0	47.5	55.5	56.5	56.0	8.5	8.5	8.5
Djibouti	39.5	42.6	41.0	46.7	50.0	48.3	7.3	7.4	7.3
Eritrea	42.8	45.9	44.3	48.8	52.1	50.4	6.1	6.1	6.1
Ethiopia	39.5	42.6	41.0	45.9	49.1	47.5	6.5	6.5	6.5
Kenya	49.0	53.0	51.0	54.2	57.3	55.7	5.2	4.3	4.7
Madagascar	45.0	48.0	46.5	55.0	58.0	56.5	10.0	10.0	10.0
Malawi	40.3	41.7	41.0	45.0	46.2	45.6	4.7	4.6	4.6
Mauritius	60.7	65.3	62.9	66.9	73.8	70.2	6.2	8.5	7.3
Mozambique	40.9	44.1	42.5	44.9	48.0	46.4	4.0	3.9	3.9
Réunion	60.4	68.1	64.2	69.4	77.7	73.5	9.0	9.6	9.3
Rwanda	43.0	46.2	44.6	45.8	48.9	47.3	2.8	2.7	2.7
Somalia	39.4	42.6	41.0	45.4	48.6	47.0	6.0	6.0	6.0
Uganda	44.9	48.1	46.5	43.6	46.2	44.9	-1.3	-1.9	-1.6
United Republic of Tanzania	44.9	48.2	46.5	50.5	53.6	52.1	5.6	5.5	5.6
Zambia	45.7	49.0	47.3	48.0	49.7	48.9	2.3	0.8	1.6
Zimbabwe	49.8	53.3	51.5	52.4	55.1	53.7	2.6	1.9	2.2
Middle Africa	42.3	45.6	43.9	49.7	53.0	51.3	7.4	7.4	7.4
Angola	36.5	39.6	38.0	44.9	48.1	46.5	8.4	8.5	8.5
Cameroon	44.3	47.3	45.8	54.5	57.5	56.0	10.2	10.2	10.2
Central African Republic	40.5	45.6	43.0	46.9	51.9	49.4	6.4	6.3	6.4
Chad	37.5	40.6	39.0	45.9	49.1	47.5	8.5	8.5	8.5
Congo	44.1	49.3	46.7	48.9	53.8	51.3	4.8	4.5	4.6
Democratic Republic of the Congo (formerly Zaire)	44.4	47.6	46.0	50.4	53.7	52.0	6.0	6.0	6.0
Equatorial Guinea	39.0	42.1	40.5	46.4	49.6	48.0	7.5	7.5	7.5
Gabon	43.4	46.6	45.0	51.9	55.2	53.5	8.4	8.5	8.5
Northern Africa	50.0	52.6	51.3	60.9	63.5	62.2	10.9	10.9	10.9
Algeria	53.5	55.5	54.5	66.0	68.3	67.1	12.5	12.8	12.7
Egypt	50.8	53.4	52.1	62.4	64.8	63.6	11.6	11.4	11.5
Libyan Arab Jamahiriya	51.4	54.5	52.9	61.6	65.0	63.1	10.2	10.5	10.2
Morocco	51.4	54.5	52.9	61.6	65.0	63.3	10.2	10.5	10.4
Sudan	42.3	45.1	43.7	51.6	54.4	53.0	9.3	9.3	9.3
Tunisia	55.1	56.1	55.6	66.9	68.7	67.8	11.8	12.6	12.2
Southern Africa	50.6	56.4	53.4	59.8	65.6	62.6	9.2	9.2	9.2
Botswana	51.5	55.0	53.2	63.0	66.7	64.9	11.5	11.7	11.7
Lesotho	48.0	53.0	50.4	58.0	63.0	60.5	10.0	10.0	10.1
Namibia	47.5	50.0	48.8	57.5	60.0	58.8	10.0	10.0	10.0

Table A.24 *(continued)*

Major area, region or country	Life expectancy at birth (years) 1970-1975 Male	Female	Both sexes	1990-1995 Male	Female	Both sexes	Change (in years) between 1970-1975 and 1990-1995 Male	Female	Both sexes
South Africa	51.0	57.0	53.9	60.0	66.0	62.9	9.0	9.0	9.0
Swaziland	45.1	49.6	47.3	55.2	59.8	57.5	10.1	10.2	10.2
Western Africa	41.3	44.3	42.8	48.3	51.3	49.8	7.0	7.1	7.0
Benin	38.5	41.6	40.0	45.9	49.3	47.6	7.5	7.7	7.6
Burkina Faso	39.7	42.8	41.2	45.8	49.0	47.4	6.2	6.2	6.2
Cape Verde	56.0	59.0	57.5	63.5	65.5	64.7	7.5	6.5	7.2
Côte d'Ivoire	43.9	47.1	45.4	49.7	52.4	51.0	5.8	5.3	5.6
Gambia	35.5	38.5	37.0	43.4	46.6	45.0	7.9	8.1	8.0
Ghana	48.3	51.7	50.0	54.2	57.8	56.0	5.9	6.1	6.0
Guinea	36.8	37.8	37.3	44.0	45.0	44.5	7.2	7.2	7.2
Guinea-Bissau	35.0	38.0	36.5	41.9	45.1	43.5	6.9	7.1	7.0
Liberia	46.0	49.0	47.5	54.0	57.0	55.4	8.0	7.9	7.9
Mali	37.0	40.1	38.5	44.4	47.6	46.0	7.4	7.6	7.5
Mauritania	41.9	45.1	43.5	49.9	53.1	51.5	8.0	8.0	8.0
Niger	37.5	40.6	39.0	44.9	48.1	46.5	7.4	7.6	7.5
Nigeria	41.9	45.1	43.5	48.8	52.0	50.4	6.9	6.9	6.9
Senegal	39.3	41.3	40.3	48.3	50.3	49.3	9.0	9.0	9.0
Sierra Leone	33.5	36.5	35.0	37.5	40.6	39.0	4.0	4.0	4.0
Togo	43.9	47.1	45.5	53.2	56.8	55.0	9.3	9.7	9.5
Asia	55.8	56.8	56.3	63.1	65.9	64.5	7.4	9.1	8.2
Eastern Asia	63.1	65.1	64.2	67.6	71.9	69.7	4.5	6.7	5.5
China	62.5	63.9	63.2	66.7	70.4	68.5	4.2	6.5	5.3
Democratic People's Republic of Korea	59.2	64.0	61.5	67.7	73.9	71.1	8.5	9.9	9.6
Hong Kong, China	68.5	75.6	72.0	75.6	81.8	78.6	7.1	6.2	6.6
Japan	70.6	76.2	73.3	76.4	82.5	79.5	5.8	6.3	6.2
Mongolia	52.5	55.0	53.8	62.3	65.0	63.7	9.8	10.0	9.9
Republic of Korea	59.3	66.1	62.6	67.3	74.9	71.1	8.0	8.8	8.5
South-central Asia	50.7	49.6	50.1	60.0	60.7	60.3	9.3	11.1	10.2
Afghanistan	38.0	38.0	38.0	43.0	44.0	43.5	5.0	6.0	5.5
Bangladesh	45.6	44.1	44.9	55.6	55.6	55.6	10.0	11.5	10.7
Bhutan	40.0	41.5	40.7	49.1	52.4	50.7	9.1	10.9	10.0
India	51.2	49.3	50.3	60.3	60.4	60.4	9.1	11.1	10.1
Iran (Islamic Republic of)	56.2	55.5	55.9	67.0	68.0	67.5	10.8	12.5	11.6
Kazakhstan	59.2	69.3	64.4	65.0	73.9	69.6	5.8	4.6	5.2
Kyrgyzstan	58.8	67.3	63.1	65.0	72.8	69.0	6.2	5.5	5.9
Maldives	52.7	50.1	51.4	63.4	60.8	62.1	10.7	10.7	10.7
Nepal	44.0	42.5	43.3	54.0	53.0	53.5	10.0	10.5	10.3
Pakistan	50.6	50.5	50.6	60.6	62.6	61.5	10.0	12.1	10.9
Sri Lanka	64.0	66.0	65.0	69.7	74.2	71.9	5.7	8.2	6.9
Tajikistan	60.8	65.9	63.4	67.3	73.0	70.2	6.5	7.1	6.8
Turkmenistan	57.2	64.1	60.7	61.5	68.5	65.0	4.4	4.5	4.4
Uzbekistan	60.7	67.4	64.2	66.0	72.2	69.2	5.3	4.8	5.0
South-eastern Asia	50.2	53.5	51.8	61.7	65.5	63.6	11.5	12.0	11.8

Table A.24 ***(continued)***

Major area, region or country	Life expectancy at birth (years) 1970-1975 Male	Female	Both sexes	1990-1995 Male	Female	Both sexes	Change (in years) between 1970-1975 and 1990-1995 Male	Female	Both sexes
Brunei Darussalam	66.9	69.9	68.3	72.5	76.3	74.2	5.6	6.4	5.9
Cambodia	39.0	41.7	40.3	50.1	52.9	51.6	11.1	11.2	11.3
East Timor	39.2	40.7	40.0	44.2	45.9	45.0	4.9	5.2	5.0
Indonesia	48.0	50.5	49.3	61.0	64.5	62.7	13.0	14.0	13.5
Lao People's Democratic Republic	39.1	41.8	40.4	49.5	52.5	51.0	10.4	10.7	10.6
Malaysia	61.4	64.7	63.0	68.7	73.0	70.8	7.3	8.3	7.8
Myanmar	48.3	51.4	49.8	56.0	59.3	57.6	7.7	7.9	7.8
Philippines	56.4	59.4	57.8	64.5	68.2	66.3	8.1	8.8	8.5
Singapore	67.3	71.8	69.5	72.4	77.4	74.8	5.0	5.6	5.3
Thailand	57.7	61.6	59.6	66.3	71.8	69.0	8.6	10.3	9.4
Viet Nam	47.7	53.1	50.3	62.9	67.3	65.2	15.2	14.2	14.9
Western Asia	56.1	59.8	57.9	64.7	68.5	66.5	8.6	8.7	8.6
Armenia	69.3	75.3	72.5	69.5	75.5	72.6	0.2	0.2	0.1
Azerbaijan	64.9	72.5	69.0	66.5	74.5	70.6	1.6	2.0	1.6
Bahrain	61.7	65.4	63.5	69.8	74.1	71.6	8.1	8.7	8.1
Cyprus	70.0	72.9	71.4	74.8	79.2	77.0	4.8	6.3	5.6
Georgia	65.0	72.9	69.2	68.5	76.7	72.8	3.5	3.8	3.6
Iraq	56.1	57.9	57.0	64.5	67.5	66.0	8.4	9.6	9.0
Israel	70.1	73.3	71.6	74.6	78.4	76.5	4.5	5.1	4.9
Jordan	54.9	58.3	56.6	66.2	69.8	67.9	11.3	11.5	11.4
Kuwait	65.3	69.3	67.3	73.3	77.2	74.9	8.0	7.9	7.7
Lebanon	63.1	67.0	65.0	66.6	70.5	68.5	3.5	3.5	3.5
Oman	47.8	50.2	49.0	67.7	71.8	69.6	19.9	21.6	20.6
Qatar	60.7	64.4	62.5	68.8	74.2	70.5	8.1	9.8	8.0
Saudi Arabia	52.4	55.5	53.9	68.4	71.4	69.7	16.0	15.9	15.8
Syrian Arab Republic	55.4	58.7	57.0	65.2	69.2	67.1	9.8	10.5	10.1
Turkey	55.9	60.0	57.9	64.5	68.6	66.5	8.6	8.6	8.6
United Arab Emirates	60.7	64.4	62.5	72.9	75.3	73.8	12.2	10.9	11.3
Yemen	41.9	42.4	42.1	49.9	50.4	50.2	8.0	8.0	8.1
Europe	67.1	74.2	70.8	68.9	77.0	72.9	1.7	2.7	2.1
Eastern Europe	64.8	73.4	69.4	63.8	74.1	68.9	-1.1	0.6	-0.5
Belarus	66.6	75.5	71.5	64.5	75.1	69.8	-2.1	-0.4	-1.7
Bulgaria	68.7	73.9	71.2	67.8	74.9	71.2	-0.9	1.0	0.0
Czech Republic	66.7	73.5	70.0	67.8	74.9	71.3	1.1	1.4	1.3
Hungary	66.5	72.3	69.3	64.5	73.8	69.0	-2.0	1.4	-0.3
Poland	67.0	74.1	70.4	66.7	75.7	71.1	-0.3	1.6	0.7
Republic of Moldova	61.6	68.5	64.8	63.5	71.6	67.6	1.9	3.1	2.8
Romania	66.8	71.3	69.0	66.6	73.3	69.8	-0.2	2.0	0.9
Russian Federation	63.1	73.5	68.2	61.7	73.6	67.6	-1.4	0.1	-0.5
Slovakia	66.8	73.5	70.0	66.5	75.4	70.9	-0.2	2.0	0.8
Ukraine	65.3	74.0	70.1	64.3	74.2	69.4	-1.0	0.2	-0.7
Northern Europe	69.2	75.5	72.4	72.7	78.7	75.7	3.5	3.2	3.4
Denmark	70.9	76.4	73.6	72.5	78.2	75.3	1.6	1.8	1.7

Table A.24 *(continued)*

Major area, region or country	Life expectancy at birth (years) 1970-1975 Male	Female	Both sexes	1990-1995 Male	Female	Both sexes	Change (in years) between 1970-1975 and 1990-1995 Male	Female	Both sexes
Estonia	65.7	74.6	70.5	63.8	74.8	69.3	-1.9	0.2	-1.2
Finland	66.6	75.0	70.7	71.7	79.6	75.7	5.1	4.6	5.0
Iceland	71.4	77.4	74.3	75.8	80.8	78.2	4.4	3.4	3.9
Ireland	68.9	73.8	71.3	72.6	78.1	75.3	3.7	4.3	4.0
Latvia	65.3	74.5	70.1	63.3	74.9	69.1	-2.0	0.4	-1.0
Lithuania	67.0	75.4	71.3	64.9	76.0	70.4	-2.1	0.6	-0.9
Norway	71.4	77.6	74.4	73.6	80.3	76.9	2.2	2.7	2.4
Sweden	72.1	77.5	74.7	75.4	81.1	78.2	3.3	3.6	3.5
United Kingdom	69.0	75.2	72.0	73.6	78.7	76.2	4.6	3.5	4.2
Southern Europe	68.7	74.2	71.5	73.0	79.3	76.2	4.3	5.1	4.7
Albania	66.0	69.5	67.7	69.2	75.0	72.0	3.2	5.5	4.3
Bosnia and Herzegovina	65.2	69.5	67.4	69.5	75.1	72.4	4.3	5.6	4.9
Croatia	66.2	72.9	69.6	67.1	75.7	71.4	0.9	2.8	1.8
Greece	70.6	74.2	72.3	75.0	80.1	77.6	4.4	5.9	5.2
Italy	69.2	75.2	72.1	74.2	80.6	77.5	5.0	5.4	5.4
Malta	68.5	72.8	70.6	73.8	78.3	76.1	5.3	5.6	5.5
Portugal	64.9	71.3	68.0	71.1	78.0	74.6	6.2	6.7	6.6
Slovenia	66.0	73.5	69.8	67.7	77.6	72.6	1.7	4.1	2.8
Spain	70.2	75.7	72.8	74.6	80.5	77.6	4.4	4.8	4.7
The former Yugoslav Republic of Macedonia	66.1	68.9	67.5	68.8	75.0	71.8	2.7	6.1	4.3
Yugoslavia	66.8	70.6	68.8	69.5	74.5	72.0	2.7	3.9	3.2
Western Europe	68.4	74.9	71.8	73.0	79.7	76.5	4.6	4.8	4.7
Austria	67.0	74.3	70.6	73.0	79.2	76.2	6.0	4.9	5.7
Belgium	68.2	74.7	71.4	73.0	79.7	76.4	4.8	5.1	5.0
France	68.6	76.3	72.3	73.0	80.8	76.9	4.4	4.5	4.5
Germany	67.9	73.8	71.0	72.7	79.0	76.0	4.8	5.2	5.0
Luxembourg	67.2	74.4	70.7	71.9	79.3	75.7	4.8	4.9	5.0
Netherlands	71.1	77.0	74.0	74.4	80.4	77.4	3.3	3.4	3.5
Switzerland	70.8	77.0	73.8	74.7	81.2	78.0	3.9	4.2	4.2
Latin America and the Caribbean	58.8	63.5	61.1	65.9	71.2	68.5	7.0	7.7	7.4
Caribbean	61.4	65.0	63.1	67.0	71.4	69.2	5.6	6.4	6.0
Bahamas	63.2	69.9	66.6	68.7	77.9	73.1	5.5	8.0	6.6
Barbados	66.9	72.0	69.4	72.9	77.9	75.6	6.0	5.9	6.1
Cuba	69.4	72.7	70.9	73.5	77.3	75.3	4.1	4.5	4.4
Dominican Republic	58.1	61.8	59.9	67.6	71.7	69.6	9.5	9.9	9.7
Guadeloupe	64.7	70.9	67.8	71.1	78.0	74.6	6.4	7.1	6.8
Haiti	47.1	50.0	48.5	55.0	58.3	56.6	7.9	8.4	8.1
Jamaica	66.6	70.8	68.7	71.4	75.8	73.6	4.8	5.0	4.9
Martinique	66.3	72.0	69.2	72.9	79.4	76.2	6.6	7.4	7.0
Netherlands Antilles	63.3	69.1	66.2	70.7	75.6	73.1	7.4	6.5	7.0
Puerto Rico	69.0	76.2	72.5	71.4	79.3	75.3	2.4	3.1	2.8
Trinidad and Tobago	63.4	68.1	65.7	69.3	74.0	71.6	5.8	6.0	5.9
Central America	59.4	63.8	61.5	67.1	72.8	69.9	7.7	9.1	8.4

Table A.24 *(continued)*

Major area, region or country	Life expectancy at birth (years) 1970-1975 Male	Female	Both sexes	1990-1995 Male	Female	Both sexes	Change (in years) between 1970-1975 and 1990-1995 Male	Female	Both sexes
Belize	66.9	68.3	67.6	72.4	75.0	73.6	5.5	6.7	6.1
Costa Rica	66.1	70.2	68.1	74.0	78.7	76.3	7.9	8.4	8.2
El Salvador	56.5	61.0	58.7	63.9	68.8	66.4	7.4	7.8	7.6
Guatemala	52.6	55.5	54.0	62.4	67.3	64.8	9.8	11.9	10.8
Honduras	52.1	56.2	54.1	65.4	70.1	67.7	13.3	13.9	13.6
Mexico	60.6	65.3	62.9	67.8	73.9	70.8	7.2	8.7	7.9
Nicaragua	53.7	56.8	55.3	64.8	68.5	66.7	11.1	11.7	11.5
Panama	65.0	68.0	66.4	70.8	75.0	72.8	5.9	7.0	6.4
South America	58.2	63.3	60.7	65.2	70.6	67.9	7.0	7.3	7.2
Argentina	64.1	70.8	67.2	68.6	75.7	72.1	4.5	4.9	4.9
Bolivia	44.6	49.0	46.7	57.7	61.0	59.4	13.2	12.0	12.6
Brazil	57.6	62.2	59.8	64.0	68.7	66.3	6.5	6.5	6.5
Chile	60.5	66.8	63.5	70.4	77.4	73.8	9.9	10.6	10.3
Colombia	59.9	63.5	61.7	66.4	72.3	69.3	6.5	8.8	7.6
Ecuador	57.4	60.5	58.9	66.4	71.4	68.8	9.0	11.0	9.9
Guyana	58.0	62.1	60.0	62.4	68.0	65.2	4.5	5.9	5.2
Paraguay	63.7	67.6	65.6	68.1	71.9	70.0	4.5	4.3	4.4
Peru	53.9	57.3	55.5	64.1	67.9	66.0	10.2	10.7	10.5
Suriname	61.7	66.5	64.0	67.8	72.8	70.3	6.1	6.3	6.2
Uruguay	65.6	72.2	68.8	69.3	75.7	72.5	3.6	3.5	3.7
Venezuela	63.3	68.9	66.0	68.9	74.7	71.7	5.6	5.8	5.7
Northern America	67.7	75.4	71.5	72.7	79.4	76.1	5.0	4.0	4.6
Canada	69.7	76.8	73.2	74.2	80.7	77.4	4.5	3.9	4.3
United States of America	67.5	75.3	71.3	72.5	79.3	76.0	5.0	4.0	4.7
Oceania	64.0	69.4	66.6	70.2	75.5	72.8	6.3	6.2	6.2
Australia-New Zealand	68.4	75.1	71.7	74.3	80.3	77.3	5.9	5.2	5.6
Australia	68.4	75.2	71.7	74.7	80.6	77.6	6.3	5.4	5.9
New Zealand	68.7	74.8	71.7	72.5	78.6	75.5	3.8	3.8	3.8
Melanesia	50.5	51.2	50.8	58.1	60.3	59.1	7.6	9.0	8.3
Fiji	63.6	66.7	65.1	69.5	73.7	71.5	5.9	7.0	6.4
New Caledonia	61.5	66.5	63.9	69.7	74.7	72.1	8.2	8.2	8.2
Papua New Guinea	47.7	47.6	47.7	55.2	56.7	55.8	7.5	9.1	8.2
Solomon Islands	60.2	63.9	62.0	68.4	72.7	70.4	8.2	8.8	8.4
Vanuatu	52.4	55.7	54.0	63.5	67.3	65.2	11.0	11.7	11.2
Micronesia	57.6	61.7	59.5	65.8	69.8	67.7	8.3	8.2	8.3
Guam	65.7	73.3	68.8	72.8	78.3	75.3	7.1	5.0	6.5
Polynesia	57.8	61.1	59.3	66.0	70.3	68.1	8.2	9.3	8.8
French Polynesia	59.3	63.0	60.9	67.2	72.8	69.8	7.9	9.8	8.9
Samoa	57.0	60.0	58.5	65.9	69.2	67.6	8.9	9.2	9.2

Source: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

[a] Comprising all regions of Europe and Northern America, Australia-New Zealand and Japan.

[b] Comprising all regions of Africa, Asia (excluding Japan) and Latin America, and regions of Melanesia, Micronesia and Polynesia.

Table A.25. Trends in infant mortality, major areas, regions and countries, 1970-1995

Major area, region or country	*Infant mortality rate (per 1,000 births)* 1970-1975	1990-1995	*Annual percentage change* 1970-1975 to 1990-1995
World total	93	64	-1.9
More developed regions [a]	21	10	-3.6
Less developed regions [b]	104	70	-2.0
Least developed countries	147	110	-1.4
Africa	131	93	-1.7
Eastern Africa	137	106	-1.3
Burundi	137	102	-1.5
Comoros	135	89	-2.1
Djibouti	154	115	-1.5
Eritrea	136	105	-1.3
Ethiopia	154	119	-1.3
Kenya	98	69	-1.7
Madagascar	172	93	-3.1
Malawi	191	143	-1.4
Mauritius	55	18	-5.6
Mozambique	168	148	-0.6
Réunion	41	8	-8.0
Rwanda	142	110	-1.3
Somalia	155	122	-1.2
Uganda	116	115	-0.0
United Republic of Tanzania	125	85	-1.9
Zambia	100	104	0.2
Zimbabwe	93	67	-1.6
Middle Africa	135	95	-1.7
Angola	173	124	-1.6
Cameroon	119	63	-3.2
Central African Republic	132	102	-1.3
Chad	166	122	-1.6
Congo	95	84	-0.6
Democratic Republic of the Congo (formerly Zaire)	127	93	-1.6
Equatorial Guinea	157	117	-1.5
Gabon	132	94	-1.7
Northern Africa	132	67	-3.4
Algeria	132	55	-4.4
Egypt	150	67	-4.0
Libyan Arab Jamahiriya	117	68	-2.7
Morocco	122	68	-2.9
Sudan	110	78	-1.7
Tunisia	120	43	-5.1
Southern Africa	81	54	-2.0
Botswana	88	43	-3.6
Lesotho	130	79	-2.5
Namibia	113	60	-3.2

Table A.25 *(continued)*

Major area, region or country	Infant mortality rate (per 1,000 births) 1970-1975	1990-1995	Annual percentage change 1970-1975 to 1990-1995
South Africa	76	53	-1.8
Swaziland	133	75	-2.9
Western Africa	131	97	-1.5
Benin	136	86	-2.3
Burkina Faso	173	130	-1.4
Cape Verde	82	50	-2.5
Côte d'Ivoire	129	92	-1.7
Gambia	179	132	-1.5
Ghana	107	81	-1.4
Guinea	177	134	-1.4
Guinea-Bissau	183	140	-1.3
Liberia	182	126	-1.8
Mali	203	159	-1.2
Mauritania	142	101	-1.7
Niger	167	124	-1.5
Nigeria	111	84	-1.4
Senegal	122	68	-2.9
Sierra Leone	193	166	-0.7
Togo	129	85	-2.1
Asia	98	65	-2.1
Eastern Asia	56	41	-1.6
China	61	44	-1.6
Democratic People's Republic of Korea	47	24	-3.2
Hong Kong, China	17	7	-4.8
Japan	12	4	-4.9
Mongolia	98	60	-2.5
Republic of Korea	38	11	-6.3
South-central Asia	132	83	-2.3
Afghanistan	194	163	-0.9
Bangladesh	140	108	-1.3
Bhutan	178	124	-1.8
India	132	82	-2.4
Iran (Islamic Republic of)	122	36	-6.1
Kazakhstan	50	30	-2.6
Kyrgyzstan	59	35	-2.6
Maldives	121	60	-3.5
Nepal	153	99	-2.2
Pakistan	140	91	-2.2
Sri Lanka	56	18	-5.8
Tajikistan	74	48	-2.2
Turkmenistan	78	57	-1.5
Uzbekistan	63	41	-2.1
South-eastern Asia	101	55	-3.1

Table A.25 *(continued)*

Major area, region or country	Infant mortality rate (per 1,000 births) 1970-1975	1990-1995	Annual percentage change 1970-1975 to 1990-1995
Brunei Darussalam	54	8	-9.5
Cambodia	181	116	-2.2
East Timor	183	149	-1.0
Indonesia	114	58	-3.4
Lao People's Democratic Republic	145	97	-2.0
Malaysia	42	13	-5.9
Myanmar	122	84	-1.9
Philippines	71	44	-2.4
Singapore	19	6	-5.7
Thailand	65	37	-2.9
Viet Nam	106	42	-4.6
Western Asia	111	57	-3.4
Armenia	22	21	-0.1
Azerbaijan	35	28	-1.1
Bahrain	52	18	-5.3
Cyprus	29	9	-6.0
Georgia	33	19	-2.7
Iraq	96	58	-2.5
Israel	23	9	-4.8
Jordan	82	36	-4.1
Kuwait	43	18	-4.3
Lebanon	48	34	-1.7
Oman	145	30	-7.9
Qatar	57	20	-5.2
Saudi Arabia	105	29	-6.5
Syrian Arab Republic	88	39	-4.0
Turkey	138	65	-3.7
United Arab Emirates	57	19	-5.6
Yemen	184	119	-2.2
Europe	25	12	-3.4
Eastern Europe	28	18	-2.1
Belarus	21	16	-1.3
Bulgaria	26	14	-3.0
Czech Republic	20	9	-3.7
Hungary	34	15	-4.0
Poland	27	15	-3.1
Republic of Moldova	37	25	-2.0
Romania	40	23	-2.8
Russian Federation	28	21	-1.4
Slovakia	24	12	-3.4
Ukraine	22	16	-1.8
Northern Europe	16	8	-3.8
Denmark	12	7	-2.4

Table A.25 *(continued)*

Major area, region or country	Infant mortality rate (per 1,000 births) 1970-1975	1990-1995	Annual percentage change 1970-1975 to 1990-1995
Estonia	21	16	-1.5
Finland	12	5	-4.0
Iceland	12	5	-3.8
Ireland	18	7	-4.6
Latvia	21	14	-2.2
Lithuania	22	13	-2.7
Norway	12	8	-2.1
Sweden	10	5	-3.2
United Kingdom	17	7	-4.3
Southern Europe	31	11	-5.2
Albania	58	30	-3.3
Bosnia and Herzegovina	51	15	-6.1
Croatia	27	9	-5.4
Greece	34	10	-6.4
Italy	26	8	-6.1
Malta	22	9	-4.4
Portugal	45	10	-7.6
Slovenia	22	8	-5.0
Spain	21	7	-5.4
The former Yugoslav Republic of Macedonia	74	27	-5.0
Yugoslavia	47	20	-4.3
Western Europe	18	7	-5.0
Austria	24	7	-6.1
Belgium	19	6	-5.5
France	16	7	-4.0
Germany	21	6	-6.1
Luxembourg	16	7	-4.2
Netherlands	12	7	-2.8
Switzerland	13	6	-4.0
Latin America and the Caribbean	80	45	-2.9
Caribbean	73	42	-2.7
Bahamas	32	23	-1.6
Barbados	33	9	-6.5
Cuba	38	12	-5.9
Dominican Republic	94	42	-4.0
Guadeloupe	42	12	-6.3
Haiti	135	86	-2.2
Jamaica	42	14	-5.5
Martinique	35	8	-7.5
Netherlands Antilles	44	19	-4.2
Puerto Rico	25	11	-4.3
Trinidad and Tobago	42	18	-4.2
Central America	74	38	-3.3

Table A.25 ***(continued)***

Major area, region or country	*Infant mortality rate (per 1,000 births) 1970-1975*	*1990-1995*	*Annual percentage change 1970-1975 to 1990-1995*
Belize	52	33	-2.3
Costa Rica	53	14	-6.7
El Salvador	99	46	-3.9
Guatemala	95	48	-3.4
Honduras	104	43	-4.4
Mexico	68	36	-3.2
Nicaragua	100	52	-3.3
Panama	43	25	-2.7
South America	84	48	-2.8
Argentina	48	24	-3.4
Bolivia	151	75	-3.5
Brazil	91	58	-2.2
Chile	69	16	-7.4
Colombia	73	37	-3.4
Ecuador	95	50	-3.2
Guyana	79	48	-2.5
Paraguay	55	38	-1.8
Peru	110	64	-2.7
Suriname	49	28	-2.8
Uruguay	46	20	-4.2
Venezuela	49	23	-3.7
Northern America	18	9	-3.7
Canada	16	7	-4.4
United States of America	18	9	-3.6
Oceania	41	27	-2.2
Australia-New Zealand	17	7	-4.2
Australia	17	7	-4.6
New Zealand	16	9	-2.7
Melanesia	89	59	-2.1
Fiji	45	23	-3.3
New Caledonia	53	22	-4.5
Papua New Guinea	100	68	-1.9
Solomon Islands	61	27	-4.1
Vanuatu	99	47	-3.7
Micronesia	72	41	-2.9
Guam	21	8	-4.7
Polynesia	85	42	-3.5
French Polynesia	64	17	-6.6
Samoa	99	64	-2.2

Sources: World Population Prospects: The 1994 Revision (United Nations publication, Sales No. E.95.XIII.16).

[a] Comprising all regions of Europe and Northern America, Australia-New Zealand and Japan.

[b] Comprising all regions of Africa, Asia (excluding Japan) and Latin America, and regions of Melanesia, Micronesia and Polynesia.

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