Adolescent Health

Reassessing the Passage to Adulthood

Judith Senderowitz
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Judith Senderowitz
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Foreword

The 1994 International Conference on Population and Development in Cairo identified the need to protect and promote the rights of adolescents to reproductive health services as critical to meeting the reproductive health goals of the Conference. Governments, in collaboration with non-governmental organizations, were urged to establish programs to meet the needs of adolescents and to address adolescent sexual and reproductive health issues.

Several global trends underscore the growing need to address adolescent health concerns. The first is demographic. A third of the world’s population is between the ages of 10 and 24, and 80 percent live in developing countries—a figure that is expected to rise to 85 percent by the year 2000. Second, human immunodeficiency virus (HIV) is spreading more rapidly among young women than any other group. Women between the ages of 15 and 25 now account for 70 percent of HIV infections among females worldwide. Third, the pregnancy rate among unmarried adolescents is higher than ever before in many countries.

In many respects adolescence sets the stage for health behavior and health status throughout adult life. Yet programs often fail to reach adolescents effectively. Young women face particular health risks because of their reproductive function and low socioeconomic status.

Focused on young women, this paper brings together available data on adolescent health, nutrition, and fertility in developing countries, summarizes program approaches and interventions to reach adolescents, and recommends legal, policy, and programmatic strategies to improve adolescents’ access to appropriate services and to enhance the quality of these services. This paper is one in a series of papers related to the issues affecting women’s health and nutrition.

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Abstract

Young people between the ages of 10 and 19, sometimes called adolescents, are generally healthy. Yet because these ages encompass the transition to adulthood, including both the biological events of puberty and the psychosocial adjustments of maturation, they are associated with risk-taking behavior and, for young women, increased health risks from pregnancy and childbirth. Gender discrimination, in food allocation, use of health care, and access to education, further compromises young women's current and future well-being.

In developing countries, because of the burden of infectious disease, programs for adolescents' health needs have been slow to develop, particularly the essential preventive services. Cultural expectations and sensitivities have also slowed attention to these needs. But now that girls remain in school longer and their contributions to their families' and countries' development are better understood, governments are becoming supportive of education and health service programs, and especially those to help young women prevent too-early pregnancy. Not only are such programs desired by the young women themselves, they also result in dramatic financial benefits for countries. Studies show that investments in family planning preclude the need for much higher expenditures on medical and other care following an adolescent birth.

This paper reviews current data on adolescent health, with an emphasis on sexual and reproductive activity. It assesses, by region, trends in sexual knowledge, contraceptive use, marriage, fertility, and sexually transmitted diseases, including HIV. It also looks at related issues of sexual abuse and genital mutilation as well as nutritional needs and health problems stemming primarily from risk-taking behavior.

The paper summarizes program approaches that have been implemented and, where possible, presents evaluation data. Promising programs have been identified in health education (including the newer, more experiential curricula such as "life planning"), health and family planning services, multiservice centers for youth, outreach programs (particularly important for reaching "street kids" and other marginalized young people), and communications. To reach adolescents, it is important to use appropriate spokespersons and messages, which require testing, and to identify the target population's preferred media formats. For all programs, effectiveness can be increased by including young people in the program's needs assessment and design and, when appropriate, in the implementation. The paper recommends changes in law and policy and programmatic revisions and additions designed to increase adolescent's access to services and to enhance the quality and relevance of services for young women. These changes require a strong commitment from governments to decreasing discrimination against young women and taking bold steps to provide them with information, education, and services.
Executive Summary

Young people between the ages of 10 and 19, having survived the vulnerable period of childhood, are generally healthy. They are, however, going through a critical passage to adulthood whose central biological event is puberty. At the same time, sociocultural factors play an increasingly important role in determining adolescents' health status.

Female adolescents face greater health risks than males because of factors relating to reproduction. But they are also at greater risk because of gender discrimination—in food allocation, health care, and access to education. The period of adolescence has lengthened in recent decades owing to earlier menarche, later marriage, and more education; as a result, the period of risk-taking behavior associated with adolescence has likewise lengthened.

Foremost among the risks for adolescent women are too-early pregnancy and childbirth. Patterns of adolescent sexual activity and fertility vary considerably among developing regions, but the trend is toward earlier sexual initiation and later marriage.

Regardless of marital status, teenagers who bear children, especially if those teenagers are under 16 or lack prenatal care, or both, face serious health risks for themselves and their children. These risks include pre-eclamptic toxemia, anemia, malnutrition, cephalopelvic disproportion, vesicovaginal and rectovaginal fistulas, difficult delivery, retardation of fetal growth, premature birth, low birth weight, and perinatal mortality. Although marriage does not alleviate all health problems for the very young woman, it can provide a support system and increase access to care.

Contributing to the prevalence of early pregnancy, in addition to earlier menarche and continued early marriage in many regions, are social and cultural changes. Social constraints on nonmarital sexual activity are easing, urbanization and higher female enrollment in school increase the opportunity for sexual activity, the media and peer pressure exert increasing influence, and, in some areas, sexual favors are often exchanged for material needs. Adolescents' knowledge of their bodies and sexuality, and of contraception and where to obtain contraceptives, remains inadequate. Their rate of contraceptive use continues to be low. Even when they know about contraceptives, young people may have difficulty obtaining them. And they may avoid using them because they fear side effects, their partner opposes use, or their religious beliefs proscribe them. Many adolescents do not use contraceptives because they did not plan to have sex or think that pregnancy is unlikely.

When unintended pregnancy occurs, young women often seek termination to avoid expulsion from school and other consequences. Each year adolescents in developing countries obtain 1 million to 4.4 million abortions. Virtually all are illegal, clandestine abortions. Because young women are more likely than older women to delay abortion and to obtain abortions from nonphysicians, and because they face greater risk of obstetrical difficulties, they suffer disproportionally from abortion complications. These include hemorrhage, septicemia, anemia, tetanus, pelvic abscess, secondary sterility, cervical and vaginal lacerations, and perforation of the uterus or bowel.

Adolescents face other consequences from earlier sexual activity. There is increased incidence among adolescents of sexually transmitted diseases, including human immunodeficiency
virus (HIV). In many areas HIV infection is increasing faster among young women than among young men.

The nutritional status of female adolescents involves special concerns, relating in part to their reproductive role. Because the onset of adolescence triggers a growth rate greater than that in any other stage except the first year of life, adolescents have higher nutritional needs. Menarche marks the beginning of higher iron needs among girls. And some girls will have entered adolescence already nutritionally vulnerable because of both poverty and gender discrimination. Malnutrition delays the onset of menarche and slows skeletal growth. Although "catch-up" appears possible, permanent stunting may result. Uncompleted skeletal growth and stunting have particularly serious consequences for childbearing because smaller pelvises can prolong labor and obstruct delivery. Nutrition during pregnancy and lactation affects the health of both the young woman and her infant.

Because adolescence involves developing an identity and exerting independence from the family, experimentation and risk-taking are conspicuous behaviors. Tobacco, alcohol, and drug use most commonly begins during the teen years. Although use of these substances is still more prevalent among young men than among young women, it has increased among both sexes, and the age at which young people begin use has fallen. Although the most serious health consequences occur later, the timing of initiation of tobacco, alcohol, and drug use influences subsequent morbidity and mortality.

Program interventions and strategies addressing adolescent health have been slow to develop. This is in part because of the perceived good health of this age-group. It is also because the cure of infectious and other diseases has traditionally taken precedence over the preventive measures required for most adolescent health problems. Thus, programs for young people are relatively new, and most have not been evaluated. Nevertheless, several models have shown good results in attracting adolescents, increasing their knowledge, positively affecting their attitudes, and possibly improving behavioral patterns. Most promising have been health education (especially reproductive health education and "life planning"), specialized health services, multiservice centers (including recreational and vocational activities), outreach programs (reaching out to schools, workplaces, and social locales), and nutrition programs (especially as integrated with other health education or services).

Information, education, and communication (IEC) services to publicize programs and communicate health information provide a critical support system for adolescent programs. Training (especially to work with adolescents), agency collaboration, and enhanced research and evaluation will also help support improved adolescent programs.

Program providers have learned useful lessons for serving adolescents effectively. Youth participation, peer education, and outreach targeting young people where they spend their time all help expand the number of adolescents served. So does collaboration between multinational and national agencies and with community groups and nongovernmental organizations (NGOs). Integrated programs that provide a range of services can be very effective in improving the lives of at-risk adolescents. Those designing programs for adolescents need to define achievable program objectives, and should be committed to change even if it involves risk. They need to give careful attention to the role and style of communications used to reach young people. And they need to be
sensitive to the cultural context of programs while also tackling harmful traditional practices such as genital mutilation.

Laws and policies can support programs for improving adolescent health by allowing adolescents access to contraceptives and abortion services, specifying health service components for adolescents, raising the legal age of marriage, and restricting advertising for and access to tobacco, alcohol, and drugs. Multinational organizations and national governments can help set the stage for legal and social change by articulating policy supportive of such change.

Countries may need to consider different strategies for improving adolescent health at different stages of development. At a minimum, school enrollment must be increased for girls, and pregnant girls should be allowed to continue their education. Discussion of sexuality, in a context emphasizing building self-esteem and acquiring life skills, should begin as early as possible—and certainly before puberty—in family, school, and other settings. To effect change, family planning services must be made available along with education, particularly in HIV-prevention programs.

Information, education, and communication supporting adolescent programs can build on young people's media preferences. Media can also promote discussion of social change among policymakers in such sensitive areas as adolescent sexuality and childbearing, family planning services for adolescents, and genital mutilation. The private sector can play a leading role in fostering policy change and instituting cutting-edge programs.

Adolescence is a key developmental age reflecting childhood health status and setting the stage for adult health concerns. These critical years have been relatively neglected. But with the lengthening of this period of the life cycle, and the increased health risks to which adolescents are subject, including the new dangers presented by HIV, health policymakers and policy planners must take on the goal of improving adolescent health and nutrition.
Overview of Adolescent Health and Nutrition

Adolescence is a relatively new concept. Until recently, children contributed to the household—performing adult tasks—as soon as they were able. In many cultures children dressed in smaller versions of adult clothes. But in nearly all cultures puberty is recognized as a distinct passage to adulthood.

Biological, technological, and socioeconomic developments, including increased education and delayed marriage, have combined to change that passage from a ritual moment in a young person's life to a period—or "biosocial gap"—of several to more than a dozen years (Senderowitz 1992). During this century the age of menarche has decreased to a range of 10 to 16.5 years and an average of about 13 years (Serrano 1990). This trend seems to have begun earlier in some areas; in Western industrial countries the mean age decreased by three to four months each decade between 1850 and 1950 before leveling off (Winter 1982).

At the World Health Organization (WHO) meeting on Pregnancy and Abortion in Adolescence in 1974, adolescence was described as the period of sexual development from the initial appearance of secondary sex characteristics to sexual maturity, psychological development from child to adult identification, and socioeconomic development from dependence to relative independence (WHO 1975). There is general concurrence on this description of adolescence. But because the period in which these events occur varies considerably among cultures and among individuals, a standard chronological definition is elusive. WHO, which earlier defined adolescence as the period between ages 10 and 19, has factored in the United Nations (UN) definition of youth as ages 15-24 and now uses the broader definition of ages 10-24 (WHO 1986).

Adolescence may defy standardization, but virtually every country defines an age of legal adulthood when individuals are considered capable of handling their own affairs. The "age of majority" is set at 21 in most countries, although in recent decades there has been a trend toward lowering the age, usually to 18 (Paxman and Zuckerman 1987). The rather arbitrary definition of legal adulthood can vary within countries, applying to some but usually not all rights, privileges, and obligations, such as voting, military service, purchase of alcohol, and consent for marriage.

The population of young people is growing dramatically. Between 1960 and 1980 the world population age 15-24 increased by 66 percent while the overall population grew by 46 percent (WHO 1986). The age-group 10-24 comprises more than 1.5 billion people, or about one in three of the world population; four out of five in this age-group live in developing countries (WHO 1989d). More than half the world's population is 24 or under (WHO 1989d). And in 1985 those under 15 accounted for 45 percent of the population in Africa, 38 percent in Latin America and South Asia, and 21-29 percent in East Asia and Europe (WHO 1989a).

Adolescents, having survived the vulnerable period of infancy and childhood, are generally healthy, although for those who suffered poverty, repeated infections, and stunted growth in childhood, adolescence can be replete with health problems (Friedman 1990). But most, even though they will experience some stress and unevenness as they navigate the passage to adulthood, will maintain generally good physical and emotional health. In both industrial and developing countries the mortality rates are lowest for those between ages 10 and 15 (UN 1992).
But adolescence is also a vulnerable period, and just as the onset and pace of adolescence are changing, so is the social and cultural context, in ways that often disproportionately affect young people. Urbanization and recent economic crises have increased poverty and given rise to a "street culture," leading to greater vulnerability among adolescents to exploitation and the new health risk of the human immunodeficiency virus (HIV) and the acquired immunodeficiency syndrome (AIDS). The AIDS pandemic is challenging social institutions and eating away at families; by 2000 an estimated 10 million children are expected to have lost one or both parents (Global AIDSNEWS 1992).

For adolescents, current and future health is especially linked with behavior (Friedman 1989). Their experimenting with new activities (including sexual ones), testing of newly acquired freedoms, and efforts to establish an identity increase their exposure to risks—too-early pregnancy and childbearing, sexually transmitted diseases (STDs), sexual abuse and exploitation, substance abuse, accidents, suicide, and violence. Some of these behaviors have immediate consequences; others lead to serious health problems much later in life. For girls, the physical consequences of early and repeated pregnancy and childbearing can seriously compromise long-term health prospects (Hamilton, Popkin, and Spicer 1984).

Gender discrimination, including the tradition of favoring sons, also leads to differences between males' and females' health and nutrition status. Bias against girls translates into more and better food and more medical services for boys, together resulting in poorer health and nutritional status for girls. Discriminatory treatment, neglect, and abandonment of girls have resulted in a high ratio of males to females—or "missing females"—in such countries as Bangladesh, China, Egypt, India, Pakistan, and Sri Lanka (Johansson and Nygren 1991; Coale 1991).

Many researchers have reported the phenomenon of "missing females" in Asia, the Middle East, and the Caribbean (Chen, Huq, and D'Souza 1981; Miller 1981; Zeitlin and others 1982; Das Gupta 1987). But studies in Africa have not reported such ratios; in fact, girls in Africa have been found to have a higher than average nutritional status (Zeitlin and others 1982).

Another key area in which girls are discriminated against is education, where more money is spent on males. Yet educating girls translates into higher social returns than educating boys; these returns include improved child health, later first births, fewer unwanted births, increased preference for smaller families, and greater use of health services (Leslie and Gupta 1989; UN 1989; Herz and others 1991).

The discrimination that girls face in health care exacerbates an already challenging set of barriers to adolescents in securing health services. They may face age limits for consent or, in some places, requirements for parental consent (Paxman and Zuckerman 1987). They often lack knowledge about which health conditions require attention and about the availability of services. The costs of health services are often beyond their means (where private services exist), and services may be provided at inaccessible locations and inconvenient hours. Perhaps most important, adolescents are concerned about confidentiality and fear judgmental health professionals.

Interestingly, adolescents' views of their health and health needs can differ greatly from those of their parents and the health professionals who serve them. In contrast with adults' views of their health needs, young people often consider psychosocial problems their greatest concern. At WHO workshops leading to the Technical Discussions on the Health of Youth (at the Forty-Second World Health Assembly), young people highlighted such problems as crises of identity and
sexuality, lack of self-confidence, competitive pressures at school and work, and fears associated with dependence and independence. The health problems they identified as most critical are associated with sexuality: female "circumcision" (identified at one African and Egyptian workshop), early marriage (cited by many from African and Asian countries), and lack of information about and access to contraception (WHO 1989b).

Adolescents' generally good health has relegated adolescent health and nutrition to a low priority for health professionals and policymakers (Serrano 1990; Friedman 1990). In addition, there is a general lack of understanding of adolescent development and the problems facing youth and a failure to appreciate the long-term health consequences of adolescents' behavior, according to a consensus view of the 1989 Technical Discussions (WHO 1990). But that is changing. Herbert Friedman (1990), director of WHO's new Adolescent Health Programme, suggests that interest in the topic has grown recently because of several developments. The victories over common infectious diseases have allowed public health professionals to turn to behavioral problems. The erosion of traditional familial and social guidance systems has increased adolescents' exposure to risks. And the adolescent population is increasing both in number and as a share of the total population, while the period of adolescence is lengthening.

Just as the recognition of adolescents' health needs is increasing, negative economic trends are reducing the public funds available for national health services (Bell and Reich 1988). Cuts in services could prove costly in the long run. A U.S. study showed that for every dollar spent on contraceptives, an estimated $4.40 in federal funds is saved that would otherwise be spent on medical care, welfare, and nutrition programs in the two years following a birth (Forrest and Singh 1990). Another study showed that more than $25 billion of public funds were spent in the United States in 1990 to support families begun by a teenage birth (CPO 1992d). The major challenges ahead for improving health and nutrition will involve structuring policy within economic constraints and employing cost-effective and resource-sparing approaches.

Although children who have survived infancy and early childhood are likely to be relatively healthy, some are vulnerable because of the cumulative effects of marginal health care and inadequate nutrition. Particularly vulnerable are those from the poorest families, those discriminated against in the allocation of food and health services, and those affected by early childbearing or violence. And it is those most in need, the disadvantaged, who are least likely to seek or to receive help (WHO 1986). Moreover, adolescents may lose out in health care because, as neither children nor adults, they fall between the divisions of the health care system.
Reproductive Health

Reproductive health is an area in which adolescents are particularly vulnerable. Rapidly changing circumstances and influences—urbanization, earlier physical maturity, shifting standards of behavior, increasing penetration of international mass media—are leading in most countries to a trend of earlier sexual activity among adolescents. Yet traditional barriers to information, contraceptives, and family planning services generally remain, and adolescents face a large number of unplanned pregnancies. Childbirth can be high-risk for young girls who are not yet physically mature. Abortions are also high-risk for adolescents, who are more likely than older women to have clandestine or illegal abortions. Teenagers and young adults account for a disproportionate share of unsafe abortions. They also suffer disproportionately from sexually transmitted diseases and, increasingly, HIV.

The birthrate among teenagers is high. In the eight most populous developing countries alone (Bangladesh, Brazil, China, India, Indonesia, Mexico, Nigeria, and Pakistan), adolescents give birth to about 8.5 million babies each year (UN 1989). The adolescent birthrate is generally decreasing; however, a UN review of 59 developing countries during the 1970s and 1980s showed that 44 had decreasing adolescent fertility rates and 15 increasing rates (UN 1991). But national statistics conceal the significant differences in birthrates within countries. Birthrates among adolescents vary by education level, which is inversely correlated with age of sexual debut and first birth, and by residence, with rural residents experiencing first births at younger ages (UN 1989).

Knowledge of sexuality and contraception

Knowledge of reproductive information, commonly assessed by measuring knowledge of a woman's fertile (or safe) period and ability to identify contraceptive methods, varies among developing regions and among groups of young people. A Kenyan study found that fewer than 8 percent of unmarried 12- to 19-year-olds could correctly identify the fertile period (Ajayi and others 1991); in a Guatemalan study only 9.3 percent of those age 15-24 could do so (CDC 1991). Recent Demographic and Health Surveys (DHS) found that young people did much better in identifying contraceptive methods (figure 1). Surveys in Latin America and the Caribbean found that at least 90 percent of women age 15-19 in Brazil, Colombia, and the Dominican Republic had knowledge of the pill, and more than 50 percent in all other countries surveyed except Guatemala. In Africa young people have less knowledge about contraception. Of the countries surveyed, only in Botswana, Kenya, and Zimbabwe did the share of young people with knowledge of contraception exceed 75 percent, and in many countries it was less than 65 percent.

Among sexually active young men and women, a higher percentage have knowledge of contraceptives—in Zimbabwe 79 percent of men and 80 percent of women (Boohene and others 1991). The share is also higher among more educated women in Latin America in the age-group 15-19. In Peru 33 percent of girls with less than five years of schooling could
identify the pill, compared with 91 percent of those with 10 or more years. And in Guatemala 5 percent with a primary education could do so compared with 30 percent of those with some secondary education (Singh and Wulf 1990).

Knowledge of HIV/AIDS

Adolescents display a remarkably good understanding of some facts about HIV despite its recent emergence. A study in five South American cities showed that more than 90 percent know the three principal modes of transmission. At the same time, however, between 31 and 63 percent incorrectly identified other ways for HIV to spread (such as mosquito bites and sharing of utensils), showing that much misinformation coexists with accurate knowledge. The study also identified an "adolescent syndrome"—that is, the respondents did not consider themselves to be at risk (Remez 1989).
Source of sexual information

Inaccurate knowledge of sexual issues abounds in part because peers are the main source of information for many young people. Focus groups in Kenya and Nigeria revealed that peers (followed by the media) were the primary source for youth not in school. Students put school at the top of the list, with the important caveat that the material they were taught was not necessarily relevant (Barker and Rich 1992). This might explain the findings of another Kenyan study. This study showed that, while 68 percent of the study population had received information on reproductive health from school, friends, and same-sex relatives, in that order, fewer than 50 percent knew that pregnancy could occur at first intercourse, in the absence of a female orgasm, or with withdrawal (Ajayi and others 1991). A study in Santiago, Chile, also identified young people as a main source of information: 36 percent of women age 15-24 sought sexual advice and information from peers and siblings (Dietz 1990).

What these studies show conclusively is that parents are not a primary source of reproductive health information. This is further confirmed by a study in Quito and Guayaquil, Ecuador, which showed that fewer than half of women age 15-24 had sought advice or information from either parent (CPO 1992a).

Until recently the subject of adolescent sexual activity was considered so sensitive that it was rarely discussed openly by educators, researchers, policymakers, or the media. Most cultures kept young people in ignorance or assigned a relative (for example, a grandmother) or a community member to pass on selected information, values, and constraints. But with modernization, migration to cities, decreased family cohesiveness, and increased mass communication, restrictions have eased. The net result is greater sexual activity with less social control.

In some cultures new and old influences on sexual behavior are being exerted simultaneously. For example, as STDs, including HIV, have become more widespread, younger women have come to be considered more desirable in part because they are "clean"—or free of STDs (CPO 1992a). In Africa girls engage in sexual activity with an older man in return for his material favors as a "sugar daddy" or, where polygamy is practiced, in the role of younger wife. This is not only fostering early pregnancy but creating a route for the HIV virus into the next generation.

At the same time, however, a premarital pregnancy not legitimized by marriage remains a disgrace in many regions of the world. In Rwanda unmarried teen mothers are rejected by their families and society and face difficult lives on their own (IAAH 1991). Focus group research in Nigeria identified a practice underscoring the stigma attached to births outside of marriage: unmarried teen mothers are forced to carry their babies in front rather than on their back, to signify that the baby is an Afì ipe b'omo, or a child born under duress (Barker and Rich 1992).

The tradition of having to prove one's fertility before marriage continues in many places. If the desired outcome occurs and a young woman becomes pregnant, the man marries her (Feyisetan and Pebley 1989; Barker and Rich 1992). But if a woman is unable to prove that she can bear children, she is rejected by the man and ostracized by her community to face an uncertain economic future.
Sexual activity by age and marital status

Researchers face barriers in assessing sexual activity among adolescents, but some studies have been conducted on nationally representative groups or specialized populations. These smaller studies should not be used as sources of comparable data or generalizations, but they do provide some insights and valuable information. The UN Population Division has reviewed and assessed many of them (UN 1989). In addition, a number of standardized surveys, the Demographic and Health Surveys (DHS) and the Young Adult Reproductive Health Surveys (YARHS), have focused on adolescent sexual and reproductive behavior in Africa and Latin America. These surveys provide the basis for most of the analysis that follows on sexual and reproductive behavior.

Rates of sexual activity among young women vary greatly. In seven of the 11 DHS countries in Sub-Saharan Africa more than half the women age 15-19 had had sexual intercourse, with the highest proportions in Mali (76 percent) and Liberia (82 percent; see table 1). In Latin America and the Caribbean the share of sexually experienced women in that age-group is generally much lower. In all countries in the region less than 25 percent of women age 15-19 were sexually experienced, except in Jamaica (55 percent) and Costa Rica, Guatemala, and Paraguay (29 percent; PRB 1992a). Yet, as the Alan Guttmacher Institute study shows (using DHS data in addition to its own findings), roughly half of the women surveyed in nine Latin American and Caribbean countries had started a sexual relationship by age 20, with about half of these coinciding with marriage or consensual union (Singh and Wulf 1990). In Asia, where fewer studies have been conducted, data for Hong Kong, the Republic of Korea, and Thailand show that typically less than 10 percent of unmarried women are sexually active (UN 1989).

The age at first sexual experience (sexual debut) varies considerably from region to region and within regions. A study in Uganda of 15- to 24-year-olds found a mean age of first coitus for men of 15.1 and for women of 15.5 (Agyei and Epema 1992). In contrast, the median age in Zimbabwe was reported as 18 for men and 19 for women. For Mexico City the Young Adult Surveys show an average age for first coitus of 15.7 for boys and 17 for girls (Singh and Wulf 1990).

The trend in most countries is toward earlier sexual initiation among both boys and girls. Suporn (1990) attributes this development to earlier sexual maturation, lack of consensus on acceptable adolescent behavior, lack of accurate knowledge of sex and reproduction, declining cultural and religious influence, urbanization, and late marriage. But there is also an influence working in the opposite direction. In Latin America premarital sexual activity appears to have declined primarily because of increased education (Singh and Wulf 1990). From a study of Mexican women age 16-19, the following psychosocial picture has been drawn of the young woman who does not become sexually active: she accepts traditional family and social norms, communicates openly with her mother about sexual issues, and expects to continue her education (Pick de Weiss and others 1991).

Looking at early sexual activity from the girl's perspective yields useful insights. A Kenyan study revealed that in a sample of sexually active female secondary school students
Table 1  Marriage and sexual experience among women age 15-19  
(percent)

<table>
<thead>
<tr>
<th>Country and year(s) of survey</th>
<th>Married</th>
<th>Single, sexually experienced</th>
<th>Single, not sexually experienced</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Africa</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Botswana, 1988</td>
<td>6</td>
<td>60</td>
<td>34</td>
</tr>
<tr>
<td>Burundi, 1987</td>
<td>7</td>
<td>2</td>
<td>91</td>
</tr>
<tr>
<td>Ghana, 1988</td>
<td>24</td>
<td>26</td>
<td>50</td>
</tr>
<tr>
<td>Kenya, 1989</td>
<td>20</td>
<td>26</td>
<td>54</td>
</tr>
<tr>
<td>Liberia, 1986</td>
<td>36</td>
<td>46</td>
<td>18</td>
</tr>
<tr>
<td>Mali, 1987</td>
<td>75</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>Nigeria, 1990</td>
<td>39</td>
<td>16</td>
<td>45</td>
</tr>
<tr>
<td>Senegal, 1986</td>
<td>44</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Togo, 1988</td>
<td>27</td>
<td>37</td>
<td>36</td>
</tr>
<tr>
<td>Uganda, 1988-89</td>
<td>41</td>
<td>22</td>
<td>38</td>
</tr>
<tr>
<td>Zimbabwe, 1988-89</td>
<td>20</td>
<td>12</td>
<td>68</td>
</tr>
<tr>
<td><strong>Latin America and the Caribbean</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bolivia, 1989</td>
<td>12</td>
<td>13</td>
<td>76</td>
</tr>
<tr>
<td>Brazil, 1986</td>
<td>13</td>
<td>6</td>
<td>81</td>
</tr>
<tr>
<td>Colombia, 1986</td>
<td>12</td>
<td>7</td>
<td>81</td>
</tr>
<tr>
<td>Costa Rica, 1990</td>
<td>18</td>
<td>11</td>
<td>71</td>
</tr>
<tr>
<td>Dominican Rep., 1992</td>
<td>17</td>
<td>3</td>
<td>80</td>
</tr>
<tr>
<td>Guatemala, 1987</td>
<td>24</td>
<td>5</td>
<td>71</td>
</tr>
<tr>
<td>Haiti, 1989</td>
<td>15</td>
<td>8</td>
<td>77</td>
</tr>
<tr>
<td>Jamaica, 1989</td>
<td>20</td>
<td>35</td>
<td>45</td>
</tr>
<tr>
<td>Mexico, 1987</td>
<td>18</td>
<td>3</td>
<td>79</td>
</tr>
<tr>
<td>Paraguay, 1987</td>
<td>17</td>
<td>12</td>
<td>71</td>
</tr>
<tr>
<td>Peru, 1986</td>
<td>12</td>
<td>6</td>
<td>82</td>
</tr>
<tr>
<td>Trinidad and Tobago, 1982</td>
<td>20</td>
<td>2</td>
<td>78</td>
</tr>
<tr>
<td><strong>Asia</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bangladesh, 1989</td>
<td>48</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>China, 1982</td>
<td>4</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>India, 1988</td>
<td>41</td>
<td>—</td>
<td>—</td>
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<tr>
<td>Indonesia, 1991</td>
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<td>—</td>
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<td>Korea, Rep. of, 1985</td>
<td>1</td>
<td>—</td>
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<tr>
<td>Pakistan, 1990–91</td>
<td>18</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Philippines, 1988</td>
<td>8</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Thailand, 1987</td>
<td>16</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

* Unmarried women not asked about sexual experience.  
— Comparable data not available. 
age 12-19, 63.3 percent had not intended to have intercourse and of those, 59.1 percent were forced to do so. Their male partners were typically considerably older (Lema 1990b). The girls, asked why they think there is increased sexual activity among adolescents, gave responses that differed notably from the reasons cited by adult health professionals. They said that girls are being "cheated" by teachers and boys, lured by "sugar daddies," influenced by the media, and shown bad examples by their mothers. They also said that girls have loose morals, that their parents are not strict enough, and that they are ignorant, frustrated, interested in material gains, and afraid to lose their boyfriends (Lema 1990a).

Many young people express a negative view of premarital sex. In the Kenyan study cited above, 77.8 percent reported that they were opposed to premarital sex (Lema 1990a and 1990b). And in a Zimbabwean study 90 percent of young women and 83 percent of young men said that they thought that a woman should remain a virgin until marriage (Boohene and others 1991). In Nigeria, too, premarital chastity remains important among all the ethnic groups, though to varying degrees, and it has traditionally been guaranteed by betrothing girls at early ages (Feyisetan and Pebley 1989). Nevertheless, in Nigeria and elsewhere the incidence and the acceptance of nonvirginity are increasing as education and the age of marriage increase.

**Marriage and consensual union**

Nearly every country has a legal minimum age for marriage for both females and males. These ages, which range from 12 for females and 14 for males in some Latin American countries to 20 and 22 in China, are most commonly 16 for women and 18 for men (UN 1989; Paxman and Zuckerman 1987). In the past 20 years 54 countries have altered their legal age of marriage—generally by raising it and usually after the actual age at marriage had already risen (Paxman and Zuckerman 1987). While the effect of laws governing the marriage age is debatable, tradition usually takes precedence over new laws. Marriage continues to occur at very young ages in many countries of Sub-Saharan Africa and South Asia, where one-third to two-thirds of teenage women are or have been married (UN 1989).

The trend toward later marriage is especially pronounced in North Africa and Asia, and less so in Sub-Saharan Africa and Latin America and the Caribbean. Education plays a key role: there is generally an inverse relation between school enrollment and marriage (UN 1989; Singh and Wulf 1990). In every country in the Alan Guttmacher Institute study, women with 10 or more years of education were two to three times less likely to marry before age 20 than those with less education (Singh and Wulf 1990). Place of residence also exerts an effect on age at marriage, with those in urban areas tending to marry later (UN 1989).

The perspective of adolescents once again suggests that their intentions differ from their behavior, however. In a Kenyan study females identified 22 as the ideal age for women to marry (males identified 20.4) and 25.5 for men (males cited 24.5); nonstudents with less education reported lower ideal ages (Ajayi and others 1991).

**Adolescent fertility rates by region**

Adolescent fertility rates are generally higher in Africa than in Asia or Latin America and the Caribbean (figure 2). In most countries in Africa they are more than 100 per thousand women age

12
15-19, in Asia between 30 and 100 per thousand, and in Latin America and the Caribbean between 50 and 100 per thousand (UN 1989; WHO 1989h; PRB 1992b). Asia contains the greatest variation, with fertility rates below 30 in several East and Southeast Asian countries, such as China and Korea, and very high in a few countries, including Bangladesh, where the fertility rate is more than 200 (UN 1989).

Figure 2. Annual birthrate of women age 15-19
(births per 1,000 women)

Africa

Latin America and the Caribbean

Asia

Women in Africa are more likely to have a child in their teen years than women in other regions. In Cote d’Ivoire, Mauritania, and Nigeria more than 40 percent of women give birth by age 18. Asia shows greater disparity; nearly two-thirds of Bangladeshi women bear children by age 18 (and a fifth before age 15), but in Korea, for example, fewer than 10 percent give birth before age 20. In most countries in Latin America and the Caribbean fewer than 20 percent give birth before age 18 and fewer than 40 percent before age 20 (UN 1989).

In Africa the majority of adolescent women in eight of the 11 DHS study countries conceived their first child after marriage. But even in these countries 20-47 percent of women conceived outside of marriage, with some marrying before the birth (PRB 1992b). In Latin America, according to data from the Young Adult Survey, 25-63 percent of adolescent women in union conceived their first child premaritally (Remez 1989). Asia tends to have lower percentages of out-of-wedlock conceptions; in most countries fewer than 10 percent, and in many countries fewer than 5 percent, of women age 20-24 report premarital conceptions leading to a birth, according to World Fertility Survey data (UN 1989).

Teens in developing countries report a significant number of mistimed and unwanted pregnancies. In Africa a large share of pregnancies among unmarried women age 15-19 are unintended: in Botswana 87 percent, in Kenya 77 percent, in Togo 74 percent, and in Uganda 63 percent. In contrast, their married counterparts reported 30 percent, 41 percent, 31 percent, and 25 percent unintended pregnancies. Among DHS study countries, only in Nigeria did fewer than 50 percent of the unmarried teens (11 percent) not intend the pregnancy (PRB 1992b). In Latin America unmarried women reported in the Young Adult Surveys that one-half to three-quarters of their pregnancies were unintended (Morris 1992).

Education level exerts a great influence on childbearing during the teen years. In many developing countries more than half the women with no education bear a child by age 20. In a majority of African countries, and in the Dominican Republic, Ecuador, and Mexico, more than two-thirds of women with no education experience a birth by age 20. But for women with seven or more years of education, the proportion giving birth before age 20 drops significantly. In Nigeria 43.4 percent of women with no education give birth before age 20, compared with 6.9 percent of women with seven years of education; for Mexico the comparable figures are 67.8 percent and 17.7 percent, and for Pakistan 53.9 percent and 15.6 percent (UN 1989). Urban residence also exerts a downward effect on fertility; fertility rates among teens in rural areas of Colombia, Mexico, and Peru are 82-121 percent higher than the rates among teens in urban areas (Singh and Wulf 1990).

Trends in teenage fertility rates vary considerably among African countries. Over the past 15 years there has been little decline in Ghana, Liberia, and Mali, some decline in Botswana, Burundi, Nigeria, and Senegal, and steadier and more significant declines in Kenya, Togo, Uganda, and Zimbabwe (PRB 1992b). In Latin America and the Caribbean little change has occurred in most countries. But Colombia, Mexico, and Venezuela experienced declines in the 1970s and 1980s, and rates also began to decline in Ecuador, Honduras, and Panama in the 1980s (UN 1989). In Asia rates have declined in Indonesia, Jordan, Kuwait, Nepal, Malaysia, and Pakistan but have changed little in much of East and Southeast Asia (UN 1989).
Use of contraception and family planning

In most countries contraception is typically first made available to and used by older—usually married—women to end their childbearing career. Recently contraceptives have begun to be available to younger women, but legal restrictions and limited access still make use difficult (Tsui 1985). And although adolescents' knowledge of contraception is increasing, their use lags far behind. In Africa the rate of use of modern contraceptive methods is low (see table 2). Among unmarried, sexually active young women in Botswana 22 percent use such methods, in Nigeria 11 percent, and in Zimbabwe 14 percent. The share using modern methods is smaller among married teens in Botswana (15 percent) and Nigeria (1 percent) than among unmarried teens, but greater in Zimbabwe (27 percent; PRB 1992b). And in Latin America and the Caribbean the DHS show that

<table>
<thead>
<tr>
<th>Africa</th>
<th>Currently married</th>
<th>Never married, but sexually experienced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botswana</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>Burundi</td>
<td>1</td>
<td>*</td>
</tr>
<tr>
<td>Ghana</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Kenya</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Liberia</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Mali</td>
<td>1</td>
<td>*</td>
</tr>
<tr>
<td>Nigeria</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Senegal</td>
<td>1</td>
<td>**</td>
</tr>
<tr>
<td>Togo</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Uganda</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>27</td>
<td>14</td>
</tr>
</tbody>
</table>

* Too few cases.
** Unmarried women not asked about contraceptives in Senegal.

the share of married women age 15-19 who use family planning ranges from 5 percent in Haiti and Guatemala to 48 percent in Jamaica and Brazil and 51 percent in Costa Rica (PRB 1992a). But many
of the young women who use any contraception use traditional methods, ranging from 4 percent of all teen users in El Salvador to 88 percent in Bolivia (PRB 1992a).

Standardized data on contraceptive use among unmarried teenagers are scant for Asia and Latin America and the Caribbean. But small studies show that among sexually experienced women age 15-19, contraception is used by 16 percent in Honduras, 29 percent in Brazil, and 43 percent in Panama; among urban, sexually experienced males and females age 11-19 in Peru, 30 percent use contraception (UN 1989). A study in Bangkok, Thailand, shows that 52 percent of unmarried female adolescents had ever used contraception (Suporn 1990). In Guatemala the DHS reports that less than 3 percent used contraception at first intercourse and those currently using contraception range from 3.8 to 23.8 percent, depending on ethnicity and residence (CDC 1991).

Whenever possible, researchers have asked study participants why they have not used contraception when pregnancy is not desired. Many of the responses have significant implications for the design of family planning programs. Several African studies report the main reasons for not using contraceptives as ignorance and misinformation about reproductive biology and contraception, difficulty in obtaining contraception, infrequent or unplanned sexual activity, opposition from partner, and religious proscription (Lema 1990b; Ajayi and others 1991; Boohene and others 1991). The Latin American and Caribbean DHS found that the young women had not expected to have intercourse and did not know about contraception (Morris 1992). And the Bangkok study showed that the principal reasons, in order of importance, were little concern for pregnancy, poor knowledge of contraception, partner's unwillingness, fear of contraceptives, and lack of preparedness (Suporn 1990).

Education level is positively associated with contraceptive use, as is sex education (Robey and others 1992). A survey in Guatemala City found that 4.5 percent of those who had received no sex education used a contraceptive method at first premarital coitus compared with 25.6 percent who had received sex education (CPO 1992b).

Abortion prevalence, morbidity, and mortality

Teenage girls facing an unintended pregnancy that will likely result in expulsion from school or ostracism by their families, or both, often seek abortions. Where abortions are legal, adolescents account for a significant share of the total. In the United States about one-quarter of abortions are obtained by teenagers, a rate similar to that in Cuba (Henshaw and Van Vort 1989; Singh and Wulf 1990). In developing countries, where abortion is usually illegal or, where the laws have eased, difficult for teenagers to obtain, teenagers are more likely than older women to have illegal, clandestine abortions—an estimated 1 million to 4.4 million a year (CPO 1992b). Part of the barrier to safe abortion for adolescents is cost; a study in Acapulco, Mexico City, and Oaxaca showed that physician-provided abortions were on average two to three times more expensive than abortions provided by nonphysicians (CPO 1992b).

Adolescents account for a disproportionate number of abortion complications. This is because, compared with older women, they are more likely to have obstetrical difficulties, to obtain clandestine abortions, and to delay obtaining the procedure until later in pregnancy. They also tend to delay seeking medical attention once problems develop, exacerbating the condition and leading to costlier courses of treatment and longer hospital stays.
Common complications of adolescent abortions, particularly illegal and thus less safe abortions, include hemorrhage, septicemia, anemia, cervical and vaginal lacerations, pelvic abscess, perforation of the uterus or bowel, tetanus, and secondary sterility (CPO 1992b). A review of data from 13 studies in seven Sub-Saharan African countries found that adolescents (roughly ages 11-19) accounted for between 39 and 72 percent of all cases of abortion-related complications (CPO 1992a). Abortion is the leading cause of admission to the emergency gynecology ward at Kenyatta National Hospital in Nairobi, where 60 percent of emergency cases are under age 20 (Ajayi and others 1991). In Nigeria a 13-year review of maternal deaths at the University of Benin Teaching Hospital revealed that complications of induced abortion accounted for 72 percent of deaths among women under 19 (Unuigbe, Oronsaye, and Ohuie 1988).

Studies comparing the risks of abortion with those of childbearing among young women in developing countries are lacking. But a comparison would not be fully enlightening because abortion is almost always performed under unsafe conditions. In the United States, where abortion is performed safely, an assessment showed that early abortion is 24 times safer than childbirth for women age 15-19 (Ory 1983; CPO 1990).

**Consequences of adolescent childbearing**

In the developing world childbirth is much riskier for women of all ages than it is in industrial countries. But it is especially dangerous for young women who have not completed their own development and who may be vulnerable nutritionally and for their fetuses (box 1). According to Senanayake (1990), the two main risks to the mother are pre-eclamptic toxemia and cephalopelvic disproportion. In a Nigerian study pre-eclamptic toxemia developed among 17 percent of 14-year-olds giving birth but only 7 percent of 16-year-olds and 3 percent of 20- to 34-year-olds (WHO 1989h). Young mothers are at increased risk of cephalopelvic disproportion because the birth canal does not complete its bone growth until two to three years after growth in height has stopped (Harrison and others 1985). Difficult deliveries among young women, caused primarily by an immature birth canal, prolong labor and increase the risk of vesicovaginal fistula. In a study of 80 Nigerian children under 13 who gave birth and developed vesicovaginal fistula, 60 percent of the cases were due to prolonged labor (Tahzib 1985). In Nigeria 33 percent of the fistula cases involve women under 16, and in Niger 80 percent are age 15-19 (WHO 1989h).

Adolescents face significantly higher risk of maternal death than do older women. For the age-group 15-19, which includes a large number of mature women, WHO (1989a) reports that the risk of dying during pregnancy or delivery is 20-200 percent greater than for older women. The younger the woman, the higher her risk. In Jamaica and Nigeria, for example, women under 15 are four to eight times more likely to die during pregnancy and childbirth than women age 15-19 (WHO 1989h).
Box 1 Major risks of teenage childbearing

- Pregnancy-induced hypertension
- Anemia and malnutrition
- Cephalopelvic disproportion
- Vesicovaginal and rectovaginal fistulas
- Difficult delivery
- Retardation of fetal growth
- Premature birth
- Low birth weight
- Perinatal mortality


Increased risks to the infant are also associated with low maternal age. Some of these stem from the large share of adolescent births that are higher-risk first births. But Edstrom concluded that adolescent births involved a higher risk of low birth weight and prematurity than first births of mothers in their twenties and that this discrepancy is far greater in developing than in industrial countries (UN 1989). Low birth weight and prematurity are in turn associated with higher rates of stillbirths and neonatal deaths. A comparison of the infant mortality rate in Africa for babies born to mothers under 20 with the rate for babies born to mothers age 20-29 yields striking results: in Nigeria teenage mothers experience 121 infant deaths per thousand live births compared with 79 for the older mothers (PRB 1992b). Even where infant mortality rates are lower, such as in Latin America and the Caribbean, there is a significant difference between the two age-groups: in Cuba the infant mortality rate for 15- to 19-year-olds is 33 per thousand live births compared with 14 for mothers age 20-25 (WHO 1989h). And in Asian countries such as Bangladesh, Korea, Malaysia, Pakistan, and Thailand the risk of infant mortality is at least 50 percent greater for teenage mothers than for mothers age 20-29 (UN 1989).

Separating out the independent effects of low maternal age from other factors typically associated with it—high incidence of first births, poverty, less education, less ability to get access to health services—is difficult, but some consensus has developed. In a review of the relation between maternal age and low birth weight, Kramer (1987) concluded that age is not an independent determinant of intrauterine growth or gestational duration. Instead, it acts indirectly by influencing height, weight, nutrition, cigarette smoking, and alcohol or drug use. Some of the indirect effects of age are biological (such as height and weight); others are culturally determined (such as substance abuse and use of prenatal services).

Most researchers agree that it would be very difficult to successfully influence the physiological factors associated with low maternal age to produce satisfactory outcomes among the youngest adolescents (under 16) and even to adequately influence the social and economic factors, such as nutrition and, especially, prenatal care (Kramer 1987; Suporn 1990; Singh and Wulf 1990). Nevertheless, under experimental conditions researchers have had some success in improving outcomes for both the adolescent mother and her baby. Nutrition and prenatal health care programs have addressed problems of prematurity, low birth weight, and intrauterine growth.
retardation. Such programs have the potential to alleviate poor nutrition, inadequate weight gain, substance abuse, genital infections, malaria, parasites, and neonatal tetanus (UN 1989).

If young pregnant women have access to such programs and use them, their health and their chances of delivering a healthy baby improve to levels almost on a par with those of older women (Singh and Wulf 1990). In northern Nigeria women age 13-16 who were pregnant for the first time and who received nutritional supplements grew during pregnancy and had reduced rates of obstructed labor (Harrison and others 1985). And a maternity care monitoring project conducted by Family Health International (FHI) in Chile, Egypt, Honduras, Singapore, Sweden, and Thailand found that in all these countries except Egypt and Singapore the number of prenatal visits had a significant positive effect on a woman's chances of having a baby with normal birth weight, net of the influences of other factors (Donaldson and Billy 1984). Children born to the younger women in the study consistently had lower birth weights, however.

Thus, the evidence points strongly to the important improvements that nutrition and prenatal care programs can make in the outcomes for mothers and infants, especially for women age 16 and over. But the prospects for those 15 and under will remain poorer, even under highly improved conditions (Kramer 1987; Singh and Wulf 1990). In assessing the potential benefits of such programs, it is especially important to factor in the difficulty of encouraging teenagers to use prenatal care to the same degree as older women, even in industrial countries such as the United States (Singh and Wulf 1990); Makinson 1985).

Adolescent mothers are at risk not only of health effects from early childbearing, but also of severe socioeconomic consequences. A Kenyan study reported that young pregnant students—as many as 10 percent of all students—were expelled from school and usually did not return (Ajayi and others 1991). In response, the Kenyan Ministry of Health noted ironically that the rising age at marriage and increasing educational level of young Kenyan women kept them in school longer, where the risk of pregnancy increases (Kenya 1988). A Rwandan study reported that expulsion for unmarried pregnant girls is mandatory; such girls are also likely to face moral persecution, and about 10 percent are disowned by their families. This, in turn, can result in child abandonment ("baby dumping") and entry into prostitution (CPO 1992a). Many young women drop out of school when faced with a pregnancy even in countries where they are not forced to do so.

The causal relation between education and childbearing works both ways: a disproportionate share of pregnant students drop out, and those not pregnant who drop out have higher birthrates than those who stay in school (Singh and Wulf 1990). Young women who bear a child before age 17 are more likely than women who delay childbirth until their twenties to have less education, to have no job or a lower-paying job, and to be separated or divorced (PIP 1985).

Sexually transmitted diseases

In industrial countries more than two-thirds of all reported gonorrhea cases occur among persons under 25. The data for developing countries, although limited, point to infection rates among young people that are at least as high—and perhaps higher—than those in industrial regions (WHO 1986). In Kenya 44 percent of STD patients are 15-25 years old, and 57 percent of female patients are under 20. In Uganda the highest incidence of STDs is among those age 15-19 (WHO 1989i). Where sexually transmitted diseases are a major health problem, the incidence tends to be higher
among women age 15-19 than among men in that age-group (WHO 1989i). Young people are
difficult to reach with STD treatment and control because they are ignorant of symptoms and
fearful of treatment (WHO 1989a). And young women are at greater risk than young men of
serious complications; because symptoms are less obvious in women, their treatment is more likely
to be delayed (WHO 1989).

HIV/AIDS

Up to 2 million people infected with HIV—at least half the total—are under 25, according to WHO
estimates, and many of those infected who are a little older probably contracted the virus in their
teens (WHO 1989a). AIDS has become a leading cause of death among young women and children
in some areas, and it is becoming worse (Oxoby and Gayle 1991). In Uganda women age 15-25
constitute one of the groups in which HIV transmission is growing fastest, and twice as many
women in that age-group as men are reported to be HIV-positive (CPO 1992c). A study in Zaire
found that HIV infection was four times more common among women than men 15-30 years old,
perhaps because of girls’ earlier sexual debut in that country (Panos Institute 1989).

In Latin America the vast numbers of “street children” in fast-growing cities are at
significant risk of HIV—studies have placed their seroprevalence rates at 2-10 percent (Knaul and
Barker 1992). Some of the 7 million or so street kids in Brazil are girls as young as nine or 10
forced into prostitution to survive. Nearly 9 percent of institutionalized children in Brazil test
positive for HIV (Panos Institute 1989). Prostitution has begun to fuel HIV transmission in Asia,
where the rate of transmission had lagged behind those of Africa and parts of the Americas.
Michael Merson, Director of WHO’s Global Programme on AIDS, has emphasized that young
people’s lack of skill in refusing sex or negotiating safer sex makes them particularly vulnerable to
HIV infection (Merson 1992).

Sexual abuse and exploitation

Rapid urbanization resulting in large numbers of unskilled young people on the economic margin
and only tenuously connected to their families, along with a ready market for sex, has led to large
numbers of adolescents entering prostitution. Some are homeless, and some are virtually sold into
prostitution by their economically desperate parents. And others are expected to come home each
morning with money to help support the family. In Thailand alone, Medecins sans Frontieres
estimates that there are 800,000 prostitutes under age 20; of these, 200,000 are under 14. Growth in
their numbers is stoked by westerners’ demand for “sex tourism” (IPPF 1992). The phenomenon of
"sugar daddies" in Africa is a variation of prostitution, though the young women do not necessarily
view it as such. Female students in Kenya and Nigeria view sexual favors as the only currency that
they have available to exchange for the small amounts that they need to cover books, school
clothes, and bus fare (Barker and Rich 1992).

In a review of studies from a number of countries, Heise (1993a) found that 40-47 percent of
reported rapes were perpetrated against girls 15 and under, and 18 percent involve those age nine
and under. In a widely publicized episode in Meru, Kenya, in July 1991, 71 teenage girls were raped
and 19 others died in a mass attack by male classmates on a girls’ dormitory at St. Kizito’s co-ed
boarding school. School officials commenting on the attack sounded an ominous note; they treated it as a common, ordinary event. The principal remarked that in the past the boys would scare the girls into the bush to "do their thing," and the vice principal was quoted as saying that "the boys never meant any harm against the girls. They just wanted to rape." Interviews that followed underscored a common theme: that boys can demand sex, that girls must submit, and that this is the normal relationship between the sexes (WIN NEWS 1991).

A comment made after the St. Kizito rampage was that the best the girls can do is hope that they don't get pregnant. But some rapes do result in pregnancy. Mexican rape crisis centers report that 15-18 percent of their clients became pregnant because of rape; rates were similar in Korea and Thailand (Shim 1992; Heise 1993a). And an organization that works with young mothers in Costa Rica reports that 95 percent of its pregnant clients under 16 were victims of incest (cited in Heise 1993a).

An effect of sexual abuse that is beginning to receive attention in industrial countries is its relation to later risk-taking behavior. A study of adolescent mothers in the United States found that, compared with adolescents who were not sexually abused, sexually victimized adolescents began intercourse one year earlier, were more likely to have used drugs and alcohol, and were less likely to practice contraception. Their average age of sexual debut was 13.8 compared with the U.S. average of 16.2 (Boyer and Fine 1992).

Genital mutilation

Estimates of the number of women who have undergone ritual "female circumcision" vary, but it is undoubtedly more than 100 million, and each year an estimated 2 million more girls undergo genital mutilation (Hosken 1992; Mohamud 1992). The practice of removing some or most of the external female genitalia has been a traditional rite initiating girls into adulthood primarily in Africa. In some places—Benin, Liberia, Sierra Leone, some states of Nigeria, and some parts of Guinea, and among some tribes in Ghana—it coincides with puberty, at about age 12-13 (Senegal n.d.). But in many places the rite is now performed on much younger girls.

The procedure is often carried out with primitive, unsterilized instruments and while forcibly holding down the young girl. In the more invasive forms, it involves extensive removal of tissue and leaves only a small opening for passage of menstrual flow. Many complications are thus associated with the practice. These include immediate ones—infection, hemorrhage, injury to adjacent organs, broken bones, violent pain, shock, and death—and later problems—scarring, recurrent urinary tract infection, painful menses, sexual complications, hematic problems, and psychological difficulties. Common effects that occur during childbirth are prolonged labor, lacerations, and vesicovaginal and rectovaginal fistulas (Senegal n.d.; Mohamud 1992).

The mortality and morbidity rates associated with genital mutilation are difficult to estimate because of the secrecy surrounding the practice and because many of the victims are infants whose deaths go unreported. But the rates are clearly high. In Sudan it is estimated that about a third of all girls in areas where antibiotics are unavailable will die as a result of the practice (Mohamud 1992). Hosken (1993) noted that every extended family in West Africa has lost at least one child as a result of genital mutilation.
Genital mutilation, deeply entrenched in the cultures in which it is practiced, is perpetuated by strong traditional dictates barring uncircumcised women from marrying, preparing meals, or being accepted in society. Because of these dictates it is typically mothers—and often young girls themselves—who request the procedure (Senegal n.d.). The young women on whom it is performed are incapable of giving informed consent, and they have no real alternative other than ostracism.

Female circumcision has traditionally been defended as necessary for aesthetic and moral reasons. But African leaders, health professionals, and women’s rights spokespersons are now attributing it to male domination in a patriarchal society in which women’s status is low and there is a perceived need to restrict and control their sexual feelings and activities (Mohamud 1992). With the convening of a seminar in 1979, WHO began an influential effort to address the issue. This was followed in 1984 by the formation of the Inter-African Committee on Traditional Practices Affecting the Health of Women and Children (IAC), which has national committees in more than 20 countries (Mohamud 1992). In 1993 WHO passed a resolution at the 46th World Health Assembly calling for member states to eliminate “harmful traditional practices affecting the health of women, children, and adolescents” (WHO 1993).

Leaders of the effort to eradicate genital mutilation warn against allowing the procedure to be carried out in hospitals so as to reduce morbidity and mortality. Although this would reduce short-term medical problems, it would perpetuate the practice by institutionalizing it in a respected professional arena. Furthermore, it would not eliminate the longer-term consequences or the compromising of the integrity of women’s bodies and sexual functioning.

Need for and access to reproductive health services

It is clear that services are required to meet adolescents’ reproductive health needs, yet adolescents throughout the world face limited access to such services. In most of the DHS-participating countries in Africa (Botswana, Ghana, Kenya, Liberia, Mali, and Togo), more than 30 percent of currently married teenagers—and in half more than 50 percent of unmarried sexually active teenagers—have an unmet need for family planning (PRB 1992b). The Alan Guttmacher Institute estimates that in Latin America and the Caribbean 12-51 percent of married teenage women need family planning services (Singh and Wulf 1990). Teenagers have difficulty making use of the services even when they are available. In Zimbabwe young people cite as reasons for not using such services the cost, not knowing where to go, and perceived disapproval if they go to a clinic (Boohene and others 1991). WHO’s Adolescent Health Programme cites young people’s inexperience in when and how to use contraception, their lack of perception of it as relevant to their needs, and their expectation of a negative reaction (WHO 1992b). In short, there is a great unmet need for services, but awareness and psychological access are also essential.
Nutritional Needs and Status of Adolescents

Adolescence is, at its most basic, a period of growth. The growth rate in this period of a person's life is greater than that in any other postnatal period except the first year (Brasel 1982). It is the only period in which growth accelerates (Heald 1979). This growth depends on adequate nutrition, which is determined by two factors. The first is the availability of food of sufficient quality and quantity, which depends on food practices, cultural traditions, family structure, birth intervals of children, the pattern of meals, and the allocation of food (Chen 1979). The second is the ability to digest, absorb, and utilize food; this can be impeded by infection, which also alters appetite, and by metabolic disorders.

Adolescents' health and nutritional status reflects the cumulative effects of childhood health and nutrition. Children and adolescents face certain nutritionally related health problems because of their physiological vulnerability. They also face cultural influences stemming from peer pressure and society's expectations that can compromise their health, influences that are stronger for girls. Children in the developing world generally experience higher mortality rates, suffer more disease and infections, and have a more precarious nutritional status than children in industrial countries. WHO (1986) reports that 20-30 percent of children in developing countries suffer from malnutrition. Poor nutrition increases the vulnerability to and the severity of infectious diseases, and when infection and poor nutrition interact over time, growth may be retarded (Hamilton, Popkin, and Spicer 1984; Chen 1979).

Poverty is a fundamental factor in adolescent malnutrition, but it is not the only factor, and it is mediated by many cultural influences. The mother's role—as it relates to her access to means of food production, her autonomy in use of assets, her knowledge of food preparation, and the number of children she has—bears strongly on children's nutrition (Zeitlin and others 1982; Hamilton, Popkin, and Spicer 1984). Some researchers have concluded that cultural factors play a stronger role than socioeconomic conditions in determining allocation of food and nutritional adequacy. Mata (1988) ascribes the most important role in improving health, nutrition, and survival to cultural and technological endowments (family or maternal technologies) and knowledge about preventing and controlling disease. These technologies, which include techniques for handling water and food, capacity to identify disease, and knowledge of treatments, offer an important tool for improving health and nutrition, in part because it is easier to disseminate these technologies than it is to directly decrease poverty or enhance the available food supply.

Even where food resources are adequate for meeting a family's total needs, the mean caloric intake of individual family members can fall below requirements. Most vulnerable are children under two and teenagers (Hamilton, Popkin, and Spicer 1984). In some regions nutritional status can be related to gender discrimination. Because of the preference for sons that is common in areas of Asia and the Middle East, girls may receive both less food and lower-quality food. A study in rural Bangladesh found that males' caloric consumption consistently exceeded that of females of childbearing age by 29 percent (Chen, Huq, and D'Souza 1981). And in India researchers found a pro-male bias of 5 percent during the lean season, with more bias among lower castes (Behrman 1988). No such bias was observed in Sub-Saharan Africa, where women's anthropometric status was found to be at par with or better than males' (Svedberg 1990).
Food taboos also compromise nutritional status. In some areas children cannot have certain foods (often eggs), or their consumption of such foods as meat and fish may be restricted when they are eating with others. The list of restricted foods can be extensive (Senegal n.d.). Food restrictions in some areas relate specifically to adolescent girls. In parts of India girls' food consumption is limited for fear that they will grow too rapidly, which would put pressure on parents to arrange an early marriage and undertake the large financial obligation of a dowry (CHETNA 1991). A young woman may need to observe a series of fasts—for example, before she marries, to acquire a good husband—or once or twice a week under ordinary circumstances (CHETNA 1991). She faces further taboos and restrictions during pregnancy (Chen 1979). On the other extreme, forced feeding is practiced in some regions, such as in Mali, Mauritania, and Niger, where preadolescent girls are compelled to consume large amounts of food. Their consequent obesity is considered a sign of beauty and wealth—and even marriageability, because they are viewed as too heavy to leave home (Senegal n.d.).

Many of these harmful nutritional practices are becoming less common as communications and exposure to urban norms increase (Hamilton, Popkin, and Spicer 1984). But media penetration brings with it idealization of the thin female body. Nutritional disorders such as anorexia nervosa and bulimia, thus far prevalent only in industrial countries, may become a new health problem for young women in the developing world (WHO 1986; Friedman 1990).

A large increase in nutrient intake is required during adolescence. During this roughly five-year period adolescents will experience a weight gain equivalent to 65 percent of their weight at the beginning of the period—or 40 percent of their final weight—and a height gain equivalent to 15 percent of their adult height (Brasel 1982). Three characteristics of puberty affect nutritional requirements: a doubling of body mass, calorie and protein requirements higher than those at almost any other time in life, and greater sensitivity than during childhood and adulthood to restricted caloric intake (Heald 1979).

A survey of adolescents' eating patterns in North America found that the nutrients most often consumed in inadequate amounts include iron, calcium, thiamine, vitamin A, and, within certain populations, protein; females were more likely than males to fall below the recommended dietary allowance, and for a greater number of nutrients (Nelson 1982). Most studies of adolescent nutrition in developing countries have focused on iron deficiency. This most common nutritional deficiency is widespread in all regions and is particularly prevalent among infants and adolescents and during pregnancy (Lanzkowsky 1982). Iron requirements in adolescence are greater in developing countries because the infectious diseases common in these countries, such as malaria, schistosomiasis, and hookworm, contribute to anemia and affect iron absorption (Brabin and Brabin 1992). The iron requirements of adolescent girls are even higher; because of menstrual blood loss, they require 10 percent more iron than boys and are twice as likely to be anemic (Friedman 1990). A review of a few studies in Africa with small samples found 45 percent of the adolescent study population to be anemic (Brabin and Brabin 1992). And a study of rural adolescent girls in India found that most were anemic and deficient in vitamin A (Brabin and Brabin 1992).

For girls the most rapid growth spurt occurs in the year prior to menarche (Heald 1979). The timing of menarche varies according to a young woman's nutrition and growth. Although there is general agreement that undernutrition slows growth and delays menarche, debate persists on the preconditions for menarche (Heald 1979; Kulin and others 1982; Winter 1982; Zeitlin and
Most researchers believe that achieving a certain critical body weight or percentage of body fat either directly influences the production of estrogens or is a parallel but unrelated process influenced by nutrition and growth rate (Winter 1982). Low iron stores during childhood may contribute to the delay of menarche (Brabin and Brabin 1992).

Malnutrition also delays skeletal growth. But malnourished adolescents typically undergo a prolonged growth period and "catch up" to their better-nourished counterparts at a later age (Heald 1979; Kulin and others 1982; Eveleth and Tanner 1990). A comparison of privileged urban and impoverished rural adolescents in Kenya identified a big difference between the groups in the early stages of puberty and just before the onset of sexual maturation but observed notable catch-up later in the maturation process (Kulin and others 1982). The catch-up process can increase nutritional risks because it reduces stores of such nutrients as iron and vitamin A; depletion of these stores increases the risk of menorrhagia, which contributes to anemia (Brabin and Brabin 1992). If the earlier malnutrition is severe, complete catch-up growth may not be possible, and permanent stunting can result (Merchant and Kurz 1993).

Poor nutrition can delay menarche from age 12-13 to about age 19, although a two-year delay is probably more common (Zeitlin and others 1982; Kulin and others 1982). For women whose menarche is delayed, the short interval between menarche and sexual exposure leaves less time for optimum physiological and anatomical maturation before pregnancy (Hamilton, Popkin, and Spicer 1984). With skeletal growth not completed until about four years postmenarche, cephalopelvic disproportion is a particular concern (Hamilton, Popkin, and Spicer 1984; Brabin and Brabin 1992). Later menarche, by delaying a first birth to a later age, may seem advantageous but, in fact, the earlier the growth process is completed, the lower the risk of poor maternal and fetal outcomes (Brabin and Brabin 1992).

The increased nutritional needs of the still growing pregnant young woman may result in competition for nutrients with her fetus (Naeye 1981; Zeitlin and others 1982; Gopalan 1990; Brabin and Brabin 1992). The consequences for the fetus include stillbirth, preterm delivery, low birth weight, and neonatal death (Zeitlin and others 1982; Gopalan 1990). In a U.S. study mothers age 10-16 had significantly smaller newborns at term compared with older mothers when maternal age-groups were matched for pre-pregnancy body size and weight gain during pregnancy; the younger group also had higher acetonuria, a marker for excessive perinatal mortality (Naeye 1981). In developing countries a woman’s body size, which reflects the maturity of her skeletal growth and her early nutritional status, is often positively related to better birth outcomes. A study of primigravidas in Tanzania showed an inverse relationship between height and cephalopelvic disproportion and caesarean section (Everett 1975).

But growth can be increased during pregnancy in primigravidas age 16 and under, with advantageous birth outcomes. A Zaria, Nigeria, birth survey found that pregnant adolescents who received antimalarial drugs and iron and folic acid supplements in the second half of pregnancy showed increased height and reduced incidence of cephalopelvic disproportion (Harrison and others 1985). And in the United States a group of adolescent mothers who received calorie, protein, vitamin, and mineral supplements gave birth to infants with a significantly higher mean birth weight than a group that received no supplements; larger effects were observed among girls under 16 (Rosso and Lederman 1982).
A key variable in a pregnant adolescent's nutritional status is her condition before conceiving. Borderline iron stores before conception are the main cause of iron-deficiency anemia during pregnancy (Brabin and Brabin 1992). In the United States 25 percent of pregnant adolescent girls have been found to be anemic (Lanzkowsky 1982). Food consumption by adolescents during pregnancy reveals inadequate intakes of calcium, iron, and vitamin A, and the food value of their consumption is extremely low compared with that among older pregnant women (Rosso and Lederman 1982).

A young woman's nutritional status before and during pregnancy and her calorie intake while lactating have an important influence on the quantity of breast milk and perhaps on its quality (Hamilton, Popkin, and Spicer 1984). A U.S. study found that among lactating mothers age 18 and under, only one in seven met the recommended dietary allowances for calcium and phosphorous (high because of their continuing growth). The low intake of these minerals among adolescent mothers was associated with a decrease in their bone mineral content compared with older mothers (Chan and others 1982). Whether supplements aimed at increasing nutrients in breast milk improve infants' nutritional status is unclear (Hamilton, Popkin, and Spicer 1984).
Other Adolescent Health Issues

While sexual and reproductive issues are the predominant health concerns of female adolescents, young girls and boys also face many other health problems, often exacerbated by poverty and underdevelopment. Females may suffer more severe consequences, however, because of cultural overlays relating to treatment—as when males receive more medical attention—or because of how they are discriminated against if affected by disease. For example, in Etteh, Nigeria, girls with severe onchocercal skin lesions are thought to have inherited their condition through their “mother’s poisoned blood,” and to be contagious and able to pass on the disfiguring disease to their offspring. Thus, they avoid social contact and are viewed as unmarriageable. Their social banishment becomes as serious as the loss of sight due to the condition (Amazigo 1992).

Many adolescent health problems are triggered solely by social behavior. Adolescents are passing through a developmental stage in which they are likely to engage in risk-taking behavior as they separate from their families, seek an identity, and gain independence in thought and action. This section discusses health issues that are primarily behavioral in origin—issues that differ significantly among regions, by age, and by gender.

Substance use and abuse

Tobacco is the most commonly used drug in the world today (WHO 1989j). Although smoking is more prevalent in industrial countries and is still primarily a male problem, its incidence is increasing in developing countries and especially among women (WHO 1986 and 1989a). In Senegal, which has among the highest rates of smoking, 52 percent of female students age 12-21 smoke (Paxman and Zuckerman 1987). Smoking is also increasing in younger age-groups, a reason for special concern because the earlier a person begins to smoke, the larger the loss in life expectancy. For women bearing children, shorter-term effects for the offspring include increased risk of lower birth weight and premature births (WHO 1989j).

In recent decades the share of children and adolescents who drink alcoholic beverages has been growing, along with the amount and frequency of their consumption (WHO 1986). Patterns of alcohol consumption, like tobacco use, are established in youth and young adulthood (WHO 1989j). Among adolescents problems with alcohol tend to cluster with other social problems, including accidents, violence, and crime (Paxman and Zuckerman 1987; WHO 1989f). Young women in developing countries are much less likely than young men to drink, but the percentage who do is increasing; if pregnant, women who drink run the risk of harming their fetus (WHO 1989j).

Psychoactive substances have existed throughout history. But their use is now beginning at younger ages, in cities as well as in drug-producing areas, and new, more potent varieties have become common (Paxman and Zuckerman 1987; WHO 1989g). Drug use is typically associated with problems of social adjustment. Young, chronic drug users tend to be out of school, alienated from their families, and influenced by their peers’ use of drugs (Paxman and Zuckerman 1987). The effects of drug use can be immediate—overdosing, increased risk of accidental injury—or longer-
term—dependence, psychological damage, and, more recently, increased risk of HIV through use of contaminated needles (WHO 1989g).

Accidents, violence, and suicide

Accidents are one of the major causes of death (WHO 1986). In many developing countries injury ranks highest among causes of death for children and young adults, accounting for 20-60 percent of deaths (Thapa 1990; Serrano 1990). In many countries adolescence is the only age-group for which accident-related mortality is rising. And for every adolescent killed as the result of an accident, 10 more are severely injured or handicapped (WHO 1989e). Unfortunately, accidents are accepted as inevitable in developing countries. Compared with infection, they seem a smaller concern, especially because they typically do not result in death, although many lead to disability (Thapa 1990).

Violent acts are also accepted with some degree of inevitability and defenselessness. Girls and women are often the victims of violent acts and, as the 1991 mass rape at the Kenyan boarding school underscored, they are often implicitly taught by their culture to regard such acts as normal. Wife abuse in the form of "dowry deaths" or "bride burning" has become more common. Heise (1993b) attributes this modern act of violence, in which a young woman may suffer abuse or murder or commit suicide if her family does not meet her husband's ongoing financial demands, to a combination of tradition and greed. In India 4,835 dowry deaths were recorded in 1990. The number is undoubtedly higher, however; some dowry deaths are recorded as due to "accidental burns," which account for one of four deaths among women age 15-24 in India (Heise 1993b). Another new violent activity, reported in Brazil, is the killing by vigilante groups of street children thought to be HIV-positive (Knaul and Barker 1992).

Suicide is increasing in many countries, including El Salvador, Mexico, Paraguay, and Thailand. Rates of attempted suicide have been highest in poor urban areas (WHO 1986). More women than men attempt suicide, but more males succeed in killing themselves (Friedman 1990). Nevertheless, in Sri Lanka, for example, deaths due to suicide among young women age 15-24 number five times those due to infectious disease and 55 times those due to obstetrical causes (Heise 1993b). Because of consistent underreporting due to shame and guilt, suicide rates are probably much higher than they appear (Friedman 1990).
Program Approaches to Address Adolescent Issues

Issues of adolescent fertility and risk-taking behavior received scant attention from health programs until the late 1970s. There were understandable reasons for this. There was enormous unmet need for health services, including family planning, for older, married women. And most societies had difficulty facing the realities of adolescents' sexual behavior outside marriage and acknowledging their need for family planning services. Young women were expected to conceive and give birth as soon as possible after marriage, and young unmarried people were not supposed to engage in sexual activity. In the light of the major health problems and demands for health services facing developing countries, adolescents—considered healthy or not expected to engage in adult behavior—have been a low-priority population for programs and services.

Interventions and strategies

Most programs addressing adolescent health issues have been small and experimental, located mainly in industrial countries, and rarely evaluated effectively (WHO 1989a). There are several explanations for this. Many of the health consequences of adolescent behavior show up only later in life. Preventive programs are less dramatic than curative ones. Governments focus on the short term, and interventions targeting adolescents show results only over the long term. And evaluating the outcomes of such programs is difficult (WHO 1989a).

WHO's Adolescent Health Programme (AHP) urges that a promotional and social strategy, rather than a purely medical one, be used to meet adolescent health needs. Interventions should reach adolescents where they live, study, and play. Mass media can reinforce these efforts through a positive approach to health (WHO 1990 and 1992b).

The International Center on Adolescent Fertility (ICAF, part of the Center for Population Options, or CPO) began collecting information on adolescent health projects in the late 1970s. Its 1991 report on 103 programs in developing countries, judged to be reasonably representative, revealed that most activities were conducted by nongovernmental organizations (NGOs) and involved family planning services (figure 3). Most projects also relied heavily on overseas assistance. Most programs—84 percent—reached youth in school, and 73 percent reached those out of school. A bare majority (51 percent) of the programs involved youth in developing materials, and 53 percent involved youth in implementing the program (CPO 1991b). In a broader effort, WHO is collaborating with the International Youth Foundation (IYF) in the Joint Project on Approaches to Adolescent Health and Development to gather information on existing programs and to promote cooperation by disseminating findings and, where possible, replicating programs. The joint project published a compendium on 385 projects and is assessing the projects to identify the most promising for inclusion in Youthnet, a network of projects that meet established criteria and that are publicized for possible replication. The largest category of IYF's compendium to date comprises programs that relate to sexual and reproductive health (WHO 1992a).
These efforts have produced a picture of current program status and provide a baseline for future developments. Few projects include scientific evaluation, and those that do are too new to allow an assessment of quantitative outcomes. The summary descriptions of adolescent programs that follow are therefore only suggestive of promising approaches.

**Health education programs.** Many health education programs address sexuality or family life issues. But many observers agree that far too often the course offerings are didactic, that the programs elicit too little participation by young people, and that they neglect issues that young people consider relevant, such as relationships and preventing pregnancy (Friedman 1990; Barker and Rich 1992; CIE 1992). If sexuality issues are not integrated into broader subjects, or if classes are outside the regular curriculum, students can find participation uncomfortable (Senderowitz and Paxman 1985). CPO’s "Life Planning" curriculum, produced with the Asociacion Demografica Costarricense for Latin America (as "Como planear mi vida"), goes beyond didactic teaching and use only in the classroom. The comprehensive life skills curriculum is experiential and interactive, relying on diverse activities rather than lectures; it focuses on self-esteem and exploration of attitudes and values and is adaptable to diverse community settings (CIE 1992; WHO 1992a). Integrating adolescent concerns makes a curriculum more relevant to young people and more comfortable for adult "gatekeepers," but program designers should avoid going too far in diluting the sensitive issues to make the package acceptable. When sex education evolved into family life education, much of the key sexuality content was removed.

Some developing countries have picked up the tempo in the past decade. Since 1982 the Planned Parenthood Association of Thailand has helped the Family Life Education Project reach close to 1 million students, or 80 percent of those in Thailand’s public secondary schools. This enormous success is attributed to collaboration between the government and the private sector (ismarton 1989).
Some creative school-based programs go beyond the classroom. In Tunisia secondary students meet informally every week under a program to promote adolescent health which the Ministry of Health sponsors in collaboration with the Ministry of Education and Science. Such health clubs have been established in 40 percent of Tunisia's public schools and 31 percent of its secondary schools (WHO 1992; Zarrouk 1992). A program begun in Ghana in 1987 by Youth for Population Information and Communication also uses clubs in schools and colleges to encourage youth to take greater responsibility for their health, especially to prevent pregnancy, STDs, AIDS, and drug abuse. The program, whose success has been attributed to its interdisciplinary approach and use of peer promoters, has been replicated in five more sites in Ghana and in Kenya, Mauritius, and Uganda (IAAH 1990; WHO 1992a). In the Caribbean "Under 20" Clubs in Grenada, Guyana, Montserrat, St. Lucia, and St. Vincent involve young people by combining health education with rap sessions, artwork, games, cooking, and videos (Stewart 1989; WHO 1992a).

In Zambia an AIDS prevention education project targeting schoolchildren and young adults works through 800 Anti-AIDS Clubs. Young people pledge to avoid sex before marriage, to spread information to friends and family, and to accept and care for the infected. The project has been expanded to reach primary schools (where the enrollment rate is 85 percent) and street kids (Panos Institute 1989; NCIH 1991). The United Nations Children's Fund (UNICEF) also targets youth in its AIDS prevention work. Its programs stress the acquisition of life skills—decisionmaking, critical thinking, assertiveness, coping, interpersonal communication, self-assessment, relationship-building, and problem-solving (UNICEF 1993a and 1993b). Its program in Zimbabwe is considered very promising because of its emphasis on understanding young people's feelings and improving their skills and because of the country's flexible and commendable education system (Faul-Doyle 1993).

Increasing self-esteem and improving practical skills are also the goals of the Pan-American Health Organization's STD/HIV prevention program and the Street Kids International project built around the adventure cartoon "Karate Kids" (Connolly 1992a). The Street Kids International project, with the help of street youth from diverse regions of the world, has designed a video to trigger discussion of AIDS and increase the use of condoms (Connolly 1992b). In another program, in Thailand, young female prostitutes were trained as peer counselors to educate their coworkers about AIDS prevention and to distribute condoms. This challenging effort led to significant increases in knowledge and in preventive behavior among prostitutes and a reduction in high-risk activity (WHO 1992a).

Understanding what young people think are healthy social and sexual practices and involving peers in transmitting useful information and advice are important in health education efforts (Ferguson 1989). Peer education programs work for a variety of reasons. One reason is that young people are better able to reach their peers, in their own language and in their own gathering spots, than are older people. And youth participating in peer education programs acquire valuable skills, such as leadership ability, as well as self-esteem and a sense of belonging (Dietz 1990).

Health and family planning services. Health education alone appears insufficient to effect behavioral change, although it appears to play a key enabling role. Attention is therefore being given to linking service programs with education. Schools provide a site for delivering health services to a population already in place, and links to health education. School-age children are at a stage in their lives when they begin to gain knowledge about health, to acquire habits that affect
their health, and to gain a sense of responsibility. School services can provide an important avenue for addressing puberty and risk-taking concerns (Masse-Raimbault 1990). But if there are already services for adolescents in a community, providing them at a school clinic can result in a substitution effect, duplicating services and costs (Kirby, Waszak, and Ziegler 1989).

Community-based family planning services are becoming more available to young women, married or not, in public or private family planning clinics. But age restrictions still exist and, much more important perhaps, so do practical barriers (such as hours and cost) and perceived restrictions (such as staff attitudes and fears about confidentiality). Some clinics have made specific adaptations to better serve adolescents. Zimbabwe's national family planning program operates a youth center offering family planning counseling and services in Harare and plans to establish a center in each province by the end of 1993 (WHO 1992b). And the IPPF's Mexican and Colombian affiliates, MEXFAM and Profamilia, have made considerable efforts to attract young people with programs in many cities (Stewart 1993).

Recently family planning projects have been started which focus solely on adolescents. One of these is the Youth Counseling Project in Ethiopia, housed in its own center, which provides information (in part through films and drama), counseling, nonprescription contraceptives, and referrals for clinical services. The project, which plans to establish its own clinic, reports that its condom distribution has been very successful; in one year it registered 1,925 condom clients (CIE 1992). A program that has attracted considerable interest is the Multidimensional Approach to Adolescent Fertility Management (MUDAFEM) in Ibadan, Nigeria. The program trains university students in sex education and family planning so that they can provide guidance and contraceptives to their peers. Expansion of the approach to other campuses in Nigeria and in other African countries is being considered (WHO 1992a).

**Multiservice centers for adolescents.** The Orientation Center for Adolescents (CORA) has pioneered many strategies for adolescent services in Latin America. CORA, based in Mexico City, has shown that a center aimed at adolescents succeeds by being adolescent-friendly, offering recreation along with counseling and services, and involving youth in planning. CORA has developed significant outreach to young people—at the workplace, for example—and uses training and materials to extend its reach even further. Another key characteristic of CORA is its collaboration with the Mexican government and, increasingly, with other governments and with NGOs in and beyond Latin America (WHO 1992a). Such multiservice centers are most common in Latin America; centers similar to CORA exist in Grenada, Guatemala, Guyana, and Panama. Chile has 12 casas de juventud that emphasize reaching young people in the slums who drop out of school by age 15 (Radrigan 1992).

Multiservice centers emerging in Africa have a practical, vocational thrust and tend to serve teen mothers. The Youth Vocational Training Center in Dar es Salaam, Tanzania, serves adolescent mothers through academic instruction, counseling, vocational training, family planning, health services, child care, and family life education. The project is designed to demonstrate to the government that pregnant schoolgirls can continue their education and that, if offered family planning services, they can prevent future pregnancies. Early results are mixed, with four of the 20 girls participating in the project having had repeat pregnancies. The project staff have concluded that they need to encourage and monitor the use of contraception and strengthen family life
education (Cooper, Paxman, and Mwateba 1988). The YWCA’s Educational Center for Adolescent Women in Botswana—selected by the International Youth Foundation (IYF) for Youthnet—provides pregnant teens and teen mothers with basic schooling, child care, parenting classes, sex education, and counseling. The center reports that there have been no dropouts and few repeat pregnancies in three years (IYF 1992). Brazil’s Casa de Passagem (Passage House) in Recife runs an integrated program for street girls that provides health services, legal aid, and shelter and emphasizes empowerment, outreach, and prevention. A Youthnet selection, Casa reaches 5,400 women a year (CPO 1991; IYF 1992).

**Outreach programs.** Many successful programs, including several of the programs reviewed above, reach out to adolescents where they live, learn, or “hang out.” CORA has worked with more than 300 adolescent groups and presented plays to more than 300,000 young people (IAAH 1988). MEXFAM’s Gente Joven used the results of a study of its target audience—low-income 11- to 20-year-olds—to reach young people where they spend their time, providing them with relevant information on family communication and first sexual relations (Reid 1989). Outreach activities not only reach their intended audience but seem to do so cost-effectively. An assessment of two experimental family planning programs in Mexico found that the Community Youth Program, which trained promoters to go out to schools and other sites where youth congregate, was more effective and less expensive than the Integrated Youth Center, which served youth at its own site. The Community Youth Program served single males at one-third the cost of serving them at the Center (Townsend and others 1987). Outreach is also crucial for serving hard-to-reach populations, such as street kids and commercial sex workers (IAAH 1990). In Thailand the Ministry of Public Health’s “100 Percent” condom program, which is trying to achieve the goal of all commercial sex workers using condoms with every customer, is showing dramatic results; condom use in sex establishments has risen to as high as 90 percent (Rojanapitayakorn 1993).

In a multicountry effort the IPPF has been working with NGOs (such as the League of Red Cross and Red Crescent Societies and the World Organization of the Scout Movement) in the Youth for Youth program in Colombia, Egypt, Jamaica, Senegal, Sierra Leone, and Sri Lanka. The goal is to bring together young people and other concerned groups to improve reproductive health among adolescents (IPPF 1993). Participants in each of the countries are assessing needs, training peer educators, developing educational materials, and raising awareness. Recent evaluations have shown that the young people are highly motivated and that the programs have developed creative approaches and are meeting young people’s needs at a low cost (CIE 1992; Senanayake 1992). Peer-to-peer programs have also proved successful in drug abuse prevention, in part because they provide positive role models (Sell 1990).

**Nutrition programs.** Nutrition programs for adolescents are rare, but nutritional components are sometimes included in multiservice programs. The Youth Vocational Training Center in Tanzania, for example, helped alleviate anemia by using cooking classes to teach preparation of iron-rich foods (Cooper, Paxman, and Mwateba 1988). And Proyecto Alternatives in Tegucigalpa, Honduras, a Youthnet project that has provided community health, nutrition, and social services to more than 1,400 working and street children and their families, has had a positive impact, reflected in clinical evidence, on young people’s nutritional status and on morbidity (IYF 1992). Young
people can contribute a great deal to improving adolescent nutrition—by helping to produce food, providing nutrition education (especially bringing information to their families), and participating in supplemental food programs (WHO 1986).

Support systems

Information, education, and communication (IEC) programs and training are often considered supporting activities. But they take on a more primary role in addressing adolescent problems. Adolescents are impressionable, vulnerable, and strongly influenced by information. Values and traditions are imbedded in many of the behaviors they are learning, increasing the importance of family communication. And as mass communication reaches more and more parts of the world, there is increased potential for communicating factual information along with new ideas and values. An important challenge for health professionals is to offset the messages that young people receive through the mass media, which sensationalize and distort issues of sexual behavior (Senderowitz and Paxman 1985; WHO 1989a). WHO’s Technical Discussions on the Health of Youth gave considerable weight to mass media’s potential ability to communicate information encouraging healthful behavior and to present positive role models (WHO 1990). As health care shifts from a curative to a preventive focus, it is important to promote healthful behavior rather than emphasize the negative consequences of unhealthful behavior (Agyemang 1992).

Information, education, and communication programs. Those planning adolescent health programs are giving considerable and effective attention to IEC activities, including publicizing available services and communicating health information. The Youth Advisory Services of the Zimbabwe National Family Planning Council, recognizing the scarcity of materials for adolescents, produced a booklet, a flip chart, a song, and slides targeting this age-group and report heavy demand for the booklet (WHO 1992a). The National Association of Nigeria Nurses and Midwives developed materials for its campaign, in 66 communities, to eradicate female circumcision and other harmful practices; these materials were widely distributed and found to be appropriate, well designed, and informative (WHO 1992a).

Efforts to improve adolescent health are relying increasingly on the media. The IPPF/Western Hemisphere Region sponsors "Under 20" radio programs on 16 Caribbean islands which use music, discussions, and interviews to communicate relevant information (Stewart 1989). Films have been produced for adolescent audiences addressing a range of high-risk behaviors, especially sex and pregnancy. Evaluations of "The Blue Pigeon," a film shown widely in Latin America, reported that it produced clear knowledge and favorable attitudes among viewers age 10-15. A later production designed for those over 15, "Music for Two," deals with relationships, contraception, and choosing a mate (Poppe and Atucha 1992). In Brazil ECOS (Studies and communication in sexuality and human reproduction) has produced two videos on adolescent sexuality to educate and to stimulate debate; the videos were shown on television and received an enthusiastic response (WHO 1992a). In Harar, Ethiopia, students themselves prepare and broadcast media programs (IAAH 1991).

Songs conveying responsible, health-promoting messages have also become important tools in family planning activities. Population Communications Services pioneered the use of singers—
such as Tatiana in Mexico, King Sunny Ade in Nigeria, and Lea Salonga in the Philippines—to communicate social messages. This effort proved that popular entertainment formats can reach large numbers of young people and foster positive attitudes and perhaps even behavioral change (AID 1988). In Nigeria 34 percent of those who heard the songs about family planning discussed them with someone, and 13 percent spoke with a health agent (PCS 1992). Popular music is also being used to spread social messages in Rwanda, where one song advises young girls "not to be seduced by men's gifts and jewelry" (IAAH 1991).

In Ghana a campaign against drug abuse uses a large mix of IEC activities, including exhibitions, newspapers, cartoons, t-shirts, slogans, stickers, campaign publicity, and radio and television discussions. Supported by the Ministries of Education, Health, and Interior, the campaign reached almost the entire school population. By the end of the campaign's first year drug-related admissions into psychiatric hospitals had decreased 15 percent. In addition, stricter legislation was passed, and law enforcement activities were stepped up. This effort provides a good example of how collaboration and a diversified strategy can make it possible to reach an entire country (WHO 1992a).

Training. The Fifth International Congress on Adolescent Health held in July 1991 concluded that adults are generally not knowledgeable enough to help young people avoid high-risk behavior and adopt healthful practices (Michaud 1991). Staff in many programs need training to relate better to adolescents (WHO and UNICEF 1992) and to move beyond the traditional didactic teaching techniques that have proved unsatisfactory. Young people respond more effectively to those who are nonjudgmental, confidential, knowledgeable, enthusiastic, caring, and creative (Stewart 1989). And they respond better when they are put at ease and encouraged to ask questions and make their own choices (Kern 1989).

Research and program evaluation. To plan the next steps for addressing adolescent health will require considerable research and program evaluation. Greater efforts are needed in epidemiological research, in social science research to investigate sexual values and behavior, and in biomedical research to clarify key risk areas for adolescents. More research on operations is also needed, and it would be useful to combine such research with qualitative studies (CIE 1992). And because many interventions take time to effect change, particularly in deeply rooted behavior relating to sexual practices and food taboos and traditions, program planners would benefit significantly from longitudinal studies tracking the results of programs for adolescent mothers and children (Remez 1989).

Collaboration and networking. International agencies can provide a boost to emerging programs, especially when they join forces to pursue a common goal. WHO, the United Nations Population Fund (UNFPA), and UNICEF, for example, have agreed on a joint strategy to promote reproductive health among adolescents (box 2). Many of the successful programs described above used collaboration to increase their coverage. The Youth for Youth project is an excellent example of international collaboration—among the IPPF as implementor, the UNFPA as funder, and WHO as technical advisor—and national collaboration—between NGOs and government agencies (Senanayake 1992).
Collaboration with women’s organizations is particularly important in efforts addressing adolescent sexuality. For such difficult issues as reducing the incidence of vesicovaginal fistulas and genital mutilation, working with women’s groups is vital.

**Box 2 The joint strategy of WHO, UNICEF, and UNFPA**

Joint, complementary, and coordinated action by WHO, UNICEF, and the UNFPA at the global, regional, and country levels, and cooperation with other UN agencies and governmental and nongovernmental organizations, will promote the reproductive health of adolescents in the following ways:

- By advocating the adoption of policies at the national level that acknowledge the special needs of adolescents for information, guidance, and health services aimed at reducing unprotected sexual activity, unwanted and early pregnancy and parenthood, induced abortion, and sexually transmitted diseases.

- By introducing programs of action for greater involvement of young people in planning, evaluating, and implementing health care.

- By facilitating the provision of methods, materials, and financial resources for improving adolescent reproductive health through education, training, and dissemination of information to the public.

- By promoting and implementing research designed to further the understanding of young people’s physical and social development and their behavioral patterns and of the attitudes and behaviors of those who most influence adolescent reproductive health.

- By using popular and scientific channels of communication to analyze and disseminate information in a way that has greatest impact on adolescent reproductive health (WHO 1989c).
Policy Issues

Laws and policy do not always create social change. Rather, they often reflect significant cultural changes that have already occurred. And laws that are too dissonant with cultural norms may be broadly ignored. Nevertheless, there is great potential for legislative initiatives to promote good health and nutrition.

Developing countries do not typically address health education through laws. But Algeria and Costa Rica do, through laws requiring health education. In fact, Algeria requires that health information be provided not only to students, but also to teachers and parents. More frequently, however, laws are used to restrict access to information and education on sexual issues, because these issues are politically controversial (Paxman and Zuckerman 1987). Although China, the Philippines, and a few European countries mandate sex education in the schools, many more countries prohibit sex education or restrict what can be taught. In Argentina including information on contraception in sex education is a criminal offense (Paxman and Zuckerman 1987). Many other countries do not address sex education in their laws, but religious or political opposition, or both, precludes effective reproductive health education.

In some countries laws regulate adolescents’ access to contraceptives. Typical restrictions require that those obtaining contraceptives be above a minimum age, be married, and have the approval of their spouse (UN 1989). These limitations are now easing, starting in industrial countries (Paxman and Zuckerman 1987). Abortion continues to be regulated more strictly. Some countries further restrict availability to young people by requiring parental or spousal consent, although other countries use young age as a factor in allowing access to abortion (Paxman and Zuckerman 1987).

Legislation raising the age of marriage has been considered—and implemented in some countries—as a way to delay childbearing and encourage young women to complete their education. In reviewing the evidence Paxman and Zuckerman (1987) conclude that such a step would probably not directly delay marriage or reduce adolescent sexual or reproductive activity but it could demonstrate a government’s commitment to these objectives. The debate on the effects of a higher legal age of marriage encompasses a range of views: some believe that it will have no effect until the minimum age is moved into the twenties, and some that it will lead to improved maternal nutritional status and higher birth weights (Gille 1985; Gopalan 1990).

Legislative actions have been effective in influencing risk-taking behavior. Restrictions on tobacco advertising have proved successful in Norway and Sweden, and similar laws are appearing in the developing world—in Afghanistan, Malaysia, Mozambique, Peru, Singapore, and Venezuela. To curb young people’s drinking, increasing the price of alcohol appears to be more effective than regulating sales or advertising (WHO 1989).

Although many laws could have a positive effect on adolescent health, public policy short of legislation is also useful in setting the direction for social change. In this regard, international agencies such as the United Nations can play a key role by recommending policies supportive of adolescent health and encouraging countries to adopt them. At the International Conference on Population in Mexico City in 1984, the following recommendation was passed:
Governments are urged to ensure that adolescents, both boys and girls, receive adequate education, including family-life and sex education, with due consideration given to the role, rights and obligations of parents and changing individual and cultural values. Suitable family planning information and services should be made available to adolescents within the changing sociocultural framework of each country. (UN 1984, p. 24)

Governments appear responsive to international agencies' leadership on adolescent health issues; the UN 6th Population Inquiry among Governments showed that 44 of the 54 respondents indicated a concern about adolescent pregnancy, including 17 of the 21 governments of countries with a high adolescent fertility rate (more than 100 births per thousand women age 15-19; UN 1989).

The private sector can also play a role in adolescent health policy by identifying policies for consideration by governments and encouraging the public and private sectors to pursue consensus on health issues. In a recent public-private effort the First Inter-African Conference on Adolescent Health, cosponsored by the Kenyan government and several NGOs and supported by various national and international agencies, convened 300 policymakers, health and youth service professionals, researchers, and young people from 30 African countries in Nairobi in March 1992. The conferees reached a strong consensus on key issues of adolescent health and agreed on goals—urging governments to commit themselves to improving adolescent health, and promoting youth participation in health planning and programs, review of existing laws, dialogue among policymakers and the community, and formation of national and regional networks to address adolescent health (CPO 1992c).
Recommendations

Outlined below are recommendations on policy and program changes that would increase adolescents’ access to health-related services and improve the quality and effectiveness of such services. Implementation of most of the program strategies and activities recommended would require governmental action or support, or both, but health, education, media, and other professionals, in both the public and the private sectors, also have a critical role to play.

Education

1. Provide greater educational opportunities for females and allow pregnant adolescents to remain in school.

2. Introduce sex, family life, or life planning education emphasizing healthful behavior, self-esteem, and increased capacity for women to safeguard their health.

Health

1. Expand and adapt family planning services for younger, unmarried people. Improve the treatment for septic abortion and, where abortion is legal, improve access for young people.

2. Strengthen outreach projects to provide hard-to-reach and risk-taking adolescents, including street children, dropouts, and commercial sex workers, with information on and methods for preventing pregnancy and the transmission of STDs and HIV.

3. Incorporate information about the dangers of genital mutilation into family planning programs. Ensure that hospitals do not take on the function of performing "female circumcision."

4. Incorporate nutritional education and supplements into family planning services and prenatal care programs to improve birth outcomes.

Legal

1. Raise the legal age of marriage.

2. Increase legal access to family planning and abortion services for adolescents.

3. Enact strong(er) laws criminalizing sexual abuse, rape, and domestic violence.

4. Strengthen the penalties for drug traffickers soliciting children and adolescents.
Media

1. Increase discussion of and attention to the health concerns of adolescents, especially too-early childbearing, genital mutilation, and substance abuse.

2. Foster discussion of safer sex and encourage young women to avoid "sugar daddies" and to negotiate condom use.

3. Tap into entertainment formats targeted to adolescents (radio, music, folk drama, television) to communicate health messages.

Research

1. Whenever possible, collect data on younger adolescents (under 15) and by single years. These considerations are important because of the earlier onset of adolescence and the rapidity of change during each phase of adolescence.

2. Collect data on the sexual knowledge and experience of unmarried adolescents to improve the design of HIV and pregnancy prevention programs for this group.

Private sector

1. Increase collaborative actions among NGOs, especially youth and women's groups, and encourage them to speak out on adolescent health issues and to become a vanguard on such challenging concerns as too-early childbearing and genital mutilation.

2. Foster the involvement of NGOs serving boys in efforts to increase male responsibility on sexual health issues.

3. Involve young people and their organizations in planning and implementing programs promoting good health.
**Conclusion**

Female adolescents are at a generally healthy stage in their life cycle. But they face potentially serious and life-threatening health conditions related primarily to early childbearing and risk-taking behavior. Adolescent girls' biological vulnerability to nutritional deficiencies and obstetrical risks is often exacerbated by cultural practices, including gender discrimination in the allocation of food and health services, encouragement of early childbearing, mandated genital mutilation, and denial of contraceptive services. Prenatal care and nutritional supplements can improve the health of young pregnant women and their infants and should be given priority in health services. But because of the biological constraints of immaturity, especially incomplete skeletal growth, childbearing before age 16 should be strongly discouraged.

Improvement in the health of females depends most critically on improvement in the overall status of women. Strong emphasis should be placed on increasing women's education and eliminating discriminatory practices. In addition, efforts should be made to increase sex education both in school and through the media and to provide family planning services to young women regardless of their age and marital status. Public leaders and health professionals have begun to recognize that adolescent behavior can have important short- and long-term health consequences. With the emergence of the AIDS pandemic, it has become urgent to end unhealthful cultural practices and to institute preventive health measures to protect and enhance young women's health and their futures.
Notes

1. The Demographic and Health Surveys (DHS) succeed the World Fertility Survey (WFS) and the Contraceptive Prevalence Surveys (CPS) that were conducted from the 1970s to the mid-1980s. Between 1985 and 1991 the DHS interviewed nationally representative samples of more than 250,000 women in 34 countries, including 15 countries in Africa, 12 in Latin America, and four in Asia. To allow comparisons among countries, the DHS uses the same core questionnaire in every country, which covers such issues as fertility, infant and child mortality, knowledge and use of family planning, contraceptive use, women’s attitudes and intentions, and unmet need for family planning. A related effort, the Young Adult Reproductive Health Surveys (YARHS), collected data on the reproductive behavior of young people age 15-24, male and female, in Costa Rica, Jamaica (for those age 14-24), and 10 cities in five Latin American countries (Robey and others 1992). Data used in this paper are from the 11 Sub-Saharan countries that participated in the DHS program between 1986 and 1990—Botswana, Burundi, Ghana, Kenya, Liberia, Mali, Nigeria, Senegal, Togo, Uganda, and Zimbabwe. For Latin America and the Caribbean, the paper uses DHS and YARHS data from Belize, Bolivia, Brazil, Colombia, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Paraguay, Peru, and Trinidad and Tobago.

2. Although gains in education are associated with reduced teenage sexual activity in Latin America, the reverse seems to be true in the United States. Singh and Wulf, the authors of *Today’s Adolescent, Tomorrow’s Parents: A Portrait of the Americas* (1990), speculate that the high levels of secondary education that have existed for many years in the United States are not sufficient to offset the effects of such cultural phenomena as popular music, advertising, and peer pressure. Thus, the authors add, if the industrial world’s sexual values, now widely communicated throughout the developing world, are adopted by young people in Latin America, their sexual behavior may begin to resemble that of their U.S. counterparts. But it is also possible that traditional family values will continue to counteract the liberal values being introduced in Latin America (Singh and Wulf 1990).

3. Fran Hosken (1992), using published population figures and estimates of subpopulation groups practicing genital mutilation, conservatively estimates that there are 110.529 million mutilated women and girls in East, West, and Central Africa. This figure includes 50 percent or more of the female populations of Djibouti, Egypt, Ethiopia, Kenya, Somalia, and Sudan in East Africa and Benin, Burkina Faso, the Central African Republic, Chad, Cote d’Ivoire, the Gambia, Guinea, Liberia, Mali, Nigeria, Senegal, Sierra Leone, and Togo in West and Central Africa, as well as 30 percent of the female population of Ghana. In some countries (Djibouti, Somalia) the number of women mutilated approaches 100 percent. Hosken’s estimate does not include women in countries adjoining those cited above (such as Cameroon, Congo, Mauritania, Tanzania, Uganda, and Zaire), in which a smaller percentage of women have undergone mutilation; their addition would probably add another 2-3 million to the total. Mutilation is also practiced on the Arab peninsula in Oman, the United Arab Emirates, and Yemen and in Moslem subpopulations in Indonesia and Malaysia (Hosken 1992).
4. A woman is defined as having an unmet need for family planning if she is not pregnant and is not using contraception but does not want to get pregnant soon.

5. Jane Ferguson (1992), at WHO's Adolescent Health Programme, and Carol O'Laughlin (1992), at the International Youth Foundation (IYF), indicated that, although they intended to focus their collaborative effort on identifying and codifying scientifically evaluated adolescent health and development programs for inclusion in IYF’s Youthnet, they could not limit their scope so drastically because of existing projects’ brief duration and the modest evaluation efforts to date. Thus, it became necessary to consider a wider range of promising activities while encouraging evaluation to be incorporated into program design.
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