

Introduction and Overview

John Bongaarts and Barney Cohen

The period of adolescence encompasses the transition from childhood to adulthood during the second decade of life. It is one of the most crucial periods in an individual's life, because during adolescence many key social, economic, biological, and demographic events occur that set the stage for adult life. Until age ten, most children in the developing world live at home, go to school, have not yet gone through puberty, and are unmarried. By age 20, most have left school and home and have become sexually active, and a large proportion has married. The quality of their future lives depends largely on the extent to which adolescents take advantage of opportunities for personal growth by going to school and being employed while avoiding potentially problematic outcomes of sexual relations, such as early dropout from school, unplanned pregnancy, or adverse health effects.

In the developing world as a whole, the 1995 population of adolescents aged 10–19 is estimated at 914 million, about one-fifth of the population of all ages (see Table 1). The proportion of adolescents varies modestly among regions, from a high of 23 percent in Africa to 19 percent in Asia. The number of adolescents aged 10–19 has grown rapidly in recent decades in all regions of the developing world, but the proportion of the population aged 10–19 has declined slightly from 22 percent in 1975 to 20 percent in 1995. This trend is primarily the result of rapid fertility declines that have taken place since the 1960s and that subsequently reduced the growth rate of the number of adolescents in many developing countries. According to the median population projection of the United Nations, the number of adolescents is expected to reach 1.13 billion by the year 2025—an increase of 219 million or 24 percent. The most rapid future growth is expected to occur in Africa and the slowest in Asia and Latin America—the two regions that have ex-

perienced the earliest and most rapid declines in fertility in recent decades.

The articles in this special issue of *Studies in Family Planning* summarize available evidence concerning reproductive behavior among adolescents in the developing world, analyze its causes and consequences, and initiate a debate on how best to design policies and programs to address the urgent needs of adolescents. Before a discussion of the significance of the research in this volume, a brief overview of research findings on the timing and prevalence of key demographic events and experiences affecting adolescents is provided below.

Trends in Key Events During Adolescence

Menarche

Past studies have documented substantial variations in the median age at menarche among populations, with a range from about 12.5 years in contemporary Western countries to more than 15 years in poor developing countries (Becker, 1993). Historical data from the United States and several European countries show a clear secular trend, with age at menarche declining at a rate of two to three months per decade since the nineteenth century, resulting in overall declines of about three years (Wysack and Frisch, 1982). Within developing countries, age at menarche is often inversely correlated with socioeconomic status, showing significant differences between urban and rural populations and between high- and low-income groups (Marshall and Tanner, 1986).

The timing of menarche in populations is probably affected by a variety of environmental, genetic, and socioeconomic factors, but most analysts consider nutritional status to be the dominant determinant (Bongaarts, 1980; Gray, 1983). The historical trends in timing were accompanied by substantial improvements in the quality and quantity of diet and in nutritional status. The observed differences between and within populations are also consistent with the nutrition hypothesis, as is the disappearance of rural–urban and social class differences in developed countries (Eveleth and Tanner, 1976). Therefore, the assumption is reasonable that age at menarche will decline in the future in developing

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Table 1 Estimates and projections of the young adult population, by region of the developing world, 1975–2025

Region	Population aged 10–19 (000)			Percent of total population			Annual growth rate (percent per year)	
	1975	1995	2025	1975	1995	2025	1975–95	1995–2025
Africa	94,401	165,323	310,620	22.8	23.0	21.4	2.8	1.9
Asia	523,268	661,637	723,508	21.8	19.2	15.1	1.2	0.8
Latin America	74,124	101,742	108,495	23.2	21.3	15.7	1.6	1.1
Developing world	676,550	914,095	1,132,778	22.3	20.2	16.6	1.5	1.0

Source: United Nations (1997).

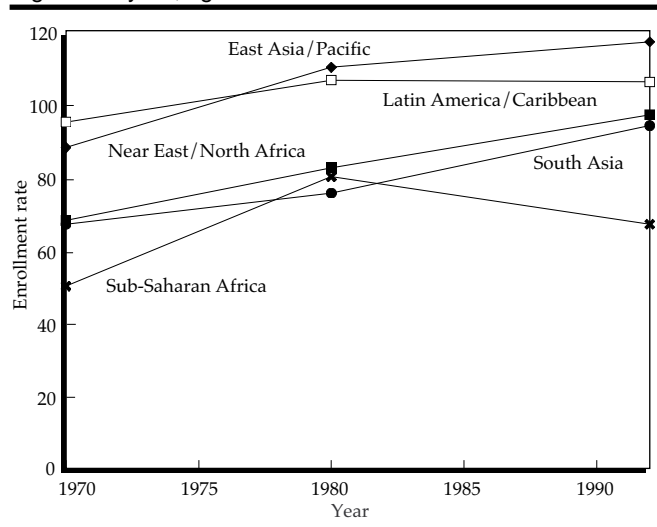
countries where nutrition levels are improving. Eventually these populations can expect to have ages at menarche similar to those now observed in the developed world.

Schooling

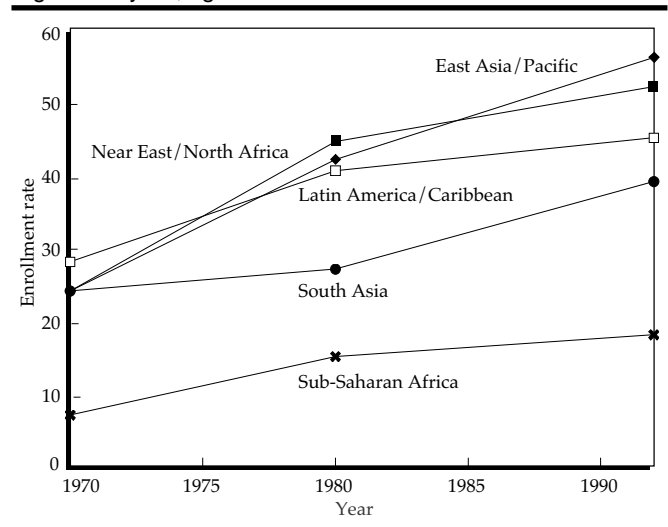
The widely recognized social, economic, and demographic benefits of education for individuals and societies have led to a rise in parental demand for children's schooling and to large new investments in the education sector by many governments. As a consequence, school attendance has risen substantially over the past three decades in virtually all developing countries. In 1970, enrollment rates at the primary level exceeded 85 primary students of all ages per 100 children aged 6–11 in East Asia and Latin America, but rates were significantly lower in South Asia (67), in the Near East and North Africa (68), and in sub-Saharan Africa (50) (see Figure 1a). At the secondary level, enrollment rates at that time averaged only 24 per 100 population aged 12–17, with sub-Saharan Africa again being the lowest at just 7 (see Figure 1b). By the early 1990s, average pri-

mary enrollment rates had risen to 102,¹ and at the secondary level, average enrollment had doubled to 54. Within this overall improving situation, one important exception is found: the decline in primary enrollments in sub-Saharan Africa during the 1980s, when many countries on this continent experienced economic decline. Another notable feature of the schooling experience in much of the developing world is a substantial gap between the enrollment rates of boys and girls (AGI, 1998; World Bank, 1996).

A key implication of these trends is that increasing proportions of the period of adolescence are spent in school. Earlier in this century, the developing world was largely rural, with agriculture the dominant economic activity, and a majority of children received no schooling or, at most, only a few years. Girls could expect to marry young and to devote much of their lifetime to rearing children, whereas boys could expect to spend most of their lives working the land. This description still applies to some of the poorest contemporary societies, particularly in sub-Saharan Africa and South Asia. However, in much of the developing world, and especially in East Asia and Latin America, most children today com-

Figure 1a School enrollment rates in primary education, by region and year, ages 6–11

Source: World Bank (1995 and 1996).

Figure 1b School enrollment rates in secondary school, by region and year, ages 12–17

Source: World Bank (1995 and 1996).

plete primary school, and a majority receive at least some secondary education. Increasingly, the expectation of boys and girls is to work in nonagricultural occupations, preferably in an urban area. These educational trends and rising aspirations have important implications for the timing of marriage and onset of childbearing.

Entry into Marital Union and Age at First Intercourse

Marriage—broadly defined here to include consensual unions as well as formally recognized civil or religious unions—marks the beginning of socially sanctioned sexual relations and exposure to the risk of childbearing in most societies. The median ages at marriage of women in developing countries range from younger than 16 (for example, in Bangladesh, Mali, and Niger),² to older than 22 (for example, in Colombia, Sri Lanka, and Tunisia) (Westoff et al., 1994; Singh and Samara, 1996). Among the many social and economic factors that potentially explain these differences in the timing of marriage, education is considered one of the most important. Empirical studies have found a strong association between education and age at first marriage at both the individual and societal level (Singh and Samara, 1996). For example, the estimates of the proportion of women aged 20–24 who married before age 20 by level of education in different regions, which are presented in Table 2, show that women with six or fewer years of schooling had a much higher chance of marrying young than did their counterparts with more than six years of schooling. This difference between educational groups was similar in all regions at just over 30 percent. A lack of reliable data prevents the accurate measurement of trends in age at marriage, but a comparison of ages at marriage of younger and older women in recent surveys indicates a clear rise over time in most countries (Westoff et al., 1994). This finding is partly attributable to the rise in school enrollments discussed above.

Although social customs usually discourage sexual relations before marriage, available evidence from surveys suggests that premarital sex is common in many developing countries. In sub-Saharan Africa, the propor-

tion of women aged 20–24 who reported having engaged in premarital sex ranged from 5 percent in Niger to 81 percent in Botswana, with the average for the 21 available surveys at 42 percent (AGI, 1998). In Latin America, this proportion ranged from 10 percent in the Dominican Republic to 40 percent in Brazil. The very limited estimates for Asian and Near Eastern countries suggest that premarital sexual activity is rarer in these regions than elsewhere. The prevalence of premarital sex appears to have increased over time (Blanc and Way, in this issue). For many women, sexual relations before marriage occur with the men they subsequently marry. This evidence concerning premarital sexual activity is derived from women's responses to survey questions. The quality and accuracy of this information may be compromised by respondents' understandable reluctance to provide information about such a private and sensitive matter.

An important consequence of a rising age at marriage combined with a decline in the age at menarche is that the number of years between menarche and marriage increases substantially over time. In the most traditional and poorest populations, girls typically marry shortly after menarche. In contrast, in some of the more advanced developing countries, the period between menarche and first marriage approaches a decade. This trend results in large increases in the number of sexually mature but unmarried adolescent girls as countries develop, thus potentially leading to a higher prevalence of sexual activity, unplanned pregnancy, and abortion among the unmarried (Senderowitz and Paxman, 1985).

First Birth

The proportion of girls who bear a child before age 20 varies widely among developing countries (see Singh, in this issue). In a few countries, this proportion reaches as high as two-thirds, for example in Bangladesh, Cameroon, Mali, and Niger,³ whereas in other countries, fewer than one in five girls gives birth before age 20 (for example, in Morocco, Sri Lanka, and Tunisia). As shown in Table 3, early childbearing is most common in sub-Saharan Africa (55 percent among women aged 20–24)

Table 2 Percentage married before age 20 among women aged 20–24, by region, according to years of education, 1980s–90s

Region	Education	
	> 6 years	≤ 6 years
Sub-Saharan Africa	38.4	71.4
Near East/North Africa	18.5	49.8
Asia	19.8	56.0
Latin America/Caribbean	30.0	62.1

Note: Estimates are unweighted means.

Source: Singh and Samara (1996).

Table 3 Percentage of women aged 20–24 who gave birth before age 20, by region, according to residence and years of education, 1980s–90s

Region	Total	Urban	Rural	Education	
				> 6 years	≤ 6 years
Sub-Saharan Africa	54.7	45.5	58.4	37.0	63.8
Near East/North Africa	25.8	17.4	32.4	8.6	35.0
Asia	33.1	23.5	37.6	17.1	45.7
Latin America/Caribbean	35.2	29.8	46.0	21.3	53.1

Note: Estimates are unweighted means.

Source: Singh (1998, in this issue).

and least common in the Near East and North Africa (26 percent). The table also shows considerable variation among subgroups within countries, with the lowest fertility occurring among urban and better-educated adolescents. An analysis of trends in adolescent fertility over time is hampered by limited data and measurement errors, but a comparison of estimates from successive surveys in the same country suggests that the rate of childbearing before age 20 is declining in most countries (Singh, in this issue).

The principal proximate determinant of these fertility differences among and within societies and trends over time is the timing of marriage. In most countries, childbearing is largely confined to marriage, and, therefore, a close correlation would be expected between the timing of marriage and adolescent childbearing. Indeed, as shown in Figure 2,⁴ a strong and highly significant inverse correlation exists between the median age at marriage in a population and the proportion of girls bearing a child before age 20. This proportion declines by nearly 7 percent for each increase of one year in the median age at first marriage. Differences in adolescent childbearing between residential and educational subgroups as well as trends over time are similarly related to the timing of marriage.

Although the large majority of births of all orders occurs within marriage, a significant proportion of first births takes place or is conceived before marriage. The available data from surveys (which may well suffer from

important reporting errors) indicate that premarital pregnancy is most prevalent in sub-Saharan Africa where in a few countries (Botswana, Kenya, and Namibia), more than one-half of adolescents who are mothers gave birth before marriage. The proportion of 15–19-year-old mothers who reported not being married at the time of their first birth averaged 32 percent in sub-Saharan Africa, 17 percent in Latin America, but less than 1 percent in Asia and in the Near East and North Africa (Singh, in this issue). Clearly, social norms and customs in Asia and North Africa are generally less permissive of premarital sexual relations and childbearing than in sub-Saharan Africa and Latin America. In each region, premarital conceptions are more prevalent than premarital births, because some pregnancies end with an abortion or lead to a quick marriage so that the birth occurs after marriage.

The Significance of the Articles in This Special Issue

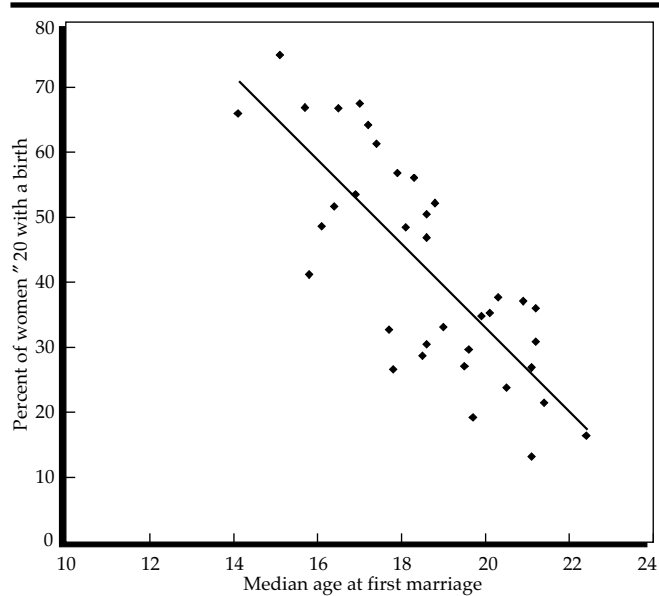
Given the life-long significance of the transition to adulthood, and in light of the expected rapid growth in the number of adolescents over the next few decades, the Committee on Population of the National Academy of Sciences organized a workshop in March 1997 to address growing concerns about the adverse consequences of teenage childbearing in developing countries. Nine of the ten articles in this special issue of *Studies in Family Planning* were originally commissioned for that workshop; one article, by Zabin and Kiragu on the health consequences of adolescent sexuality and fertility, was commissioned previously by the Academy.

Taken together, the articles map out many of the major themes of interest to researchers and policymakers concerned with adolescent reproductive behavior. The issue offers a diversity of geographic, historical, and scholarly perspectives, from global trends in teenage childbearing and contraceptive use to in-depth analyses of smaller segments of adolescent populations in individual developing countries. Its contributors include demographers, sociologists, economists, anthropologists, and public health specialists.

Levels and Trends in Reproductive Behavior

The first two articles in this special issue review available data on reproductive behavior among adolescents, including age at first intercourse, age at first marriage, and age at first childbearing. Together, these two articles provide a state-of-the-art review of what is known about adolescents' knowledge and use of contraceptives as well

Figure 2 Percentage of women aged 20–24 who reported that they gave birth by age 20, by median age at first marriage, 36 countries



Sources: Singh and Samara (1996); Singh (1998).

as estimates of rates of pregnancy, fertility, and abortion among adolescents in the developing world.

In the first article, Blanc and Way draw on data from recent rounds of the Demographic and Health Surveys to provide an overview of sexual behavior and contraceptive knowledge and use among adolescent women across a large number of developing countries in Africa, Asia, the Near East, and Latin America and the Caribbean. The authors conclude that both age at first sex and age at first marriage are generally rising, but that age at first marriage typically has risen substantially faster, so that the length of time between first sex and first marriage has increased, exposing young women to a greater risk of premarital pregnancy. Furthermore, adolescents appear to be unlikely to use contraceptives the first time they have sex. Even though a majority of adolescent women in developing countries knows about contraceptive methods, they are less likely than adult women to practice contraception. Consequently, many teens are exposed to the risk of pregnancy the first time they have sex.

With so much written about the potentially deleterious consequences of adolescent pregnancy and childbearing, one might easily imagine that the prevalence of adolescent childbearing is rising uniformly across the developing world. In fact, the article by Singh reveals a mixed picture: In a few countries, adolescent childbearing is increasing, but in many places, it is actually declining. North Africa and Asia have experienced the greatest and most uniform declines in early childbearing, accompanied by equally substantial delays in age at first marriage. But, as the number of years that young women spend unmarried increases, the possibility of premarital sexual activity and pregnancy rises. As a consequence, in several countries, particularly in sub-Saharan Africa (for example, in Botswana, Kenya, Liberia, Madagascar, Namibia, and Zambia), the proportion of adolescent births to unmarried women is increasing and may continue to do so if contraceptive use among sexually active unmarried young women does not increase substantially.

The Changing Social Context

The social context of adolescent fertility varies widely across countries and across continents. An increase in adolescent fertility outside of marriage is only one of many changes that is affecting the lives of young people. Other important trends include rises in formal education, incomes, and urbanization, as well as a general increase in the availability of modern contraceptives. These changes are part of an unfolding social context that not only affects reproductive behavior but also strongly influences the consequences of early childbear-

ing. The second set of contributions to this special issue consists of four articles that discuss the changing social context in which adolescents grow up.

The article by Caldwell and his colleagues provides a broad overview of the changing construction of adolescence in a number of societies and its implications for sexuality, reproduction, and marriage. Drawing on their own extensive research programs in Bangladesh, India, Nigeria, and Sri Lanka, the authors show how the period now known as adolescence came into being and how it has been shaped by international economic, institutional, and social influences. Although one might imagine that changes associated with urbanization, an increase in formal education, and the greater reach of the media are leading to a more homogeneous world society, the authors argue that in matters of sexuality, reproduction, and marriage, the most important forces shaping modern-day adolescence are each society's particular precontact cultural values and institutions, which, to a considerable degree, remain intact.

In order to make reproductive health programs targeted toward adolescents more effective, program designers must understand how adolescents think. Gage provides a review of the literature concerning many of the important elements of adolescents' decisionmaking processes, including their perceptions of the costs and benefits of engaging in sexual behavior, their assessment of their own susceptibility to the potentially negative consequences of their behavior, and the roles of families and peers in shaping their reproductive decisions. Although some adolescents appear to weigh the pros and cons of engaging in certain behaviors, not all decisions are made rationally. For example, decisions to engage in unprotected sexual intercourse may be based on insufficient knowledge or on distorted judgments concerning the risks of pregnancy or of acquiring sexually transmitted diseases (STDs). Non-decisionmaking can occur because of ambivalence about pregnancy or STDs, particularly among younger adolescents. Cultural values regarding sexuality and gender roles, the power dimensions of adolescents' intimate relationships, and economic disadvantage exert powerful influences on how adolescents in developing countries make sexual and reproductive decisions. Family opinions and attitudes appear to be given relatively less weight than are those of peers and partners, particularly in settings where traditional cultural values have been eroded.

As part of their decisionmaking process, adolescents often look to their teachers, their peers, and to their school environment for clues regarding various aspects of sexual behavior and to evaluate the degree to which their beliefs agree or disagree with group norms. Consequently, schools are a very important arena to study because, for

many adolescents, much of their socialization takes place within the halls and classrooms of the school building. In a study of gender differences in the schooling experiences of adolescents in Kenya, Mensch and Lloyd find that girls suffer from negative attitudes and discriminatory behavior regardless of whether they are enrolled in high- or low-performing primary schools. Typically, teachers have lower expectations for adolescent girls than they do for boys, perpetuate traditional assumptions about gender roles, and exhibit a double standard regarding sexual activities. Furthermore, in some schools, access to information about family planning is severely limited because of teachers' fear that such education could be disruptive to the school environment. Although they are treated poorly, girls have much to gain from doing well in school. Those who score well enough on primary-school-leaving exams to go on to secondary school typically have better job and marriage prospects than those who do not.

Not much is known about the reproductive behavior of unmarried adolescents in Asia because questions about reproduction and about sex are typically asked only of those in unions. The view persists in this region, perhaps more than in any other, that sex only occurs within unions, and that unions are only well-defined institutionalized marriages (Xenos, 1997). Nevertheless, the introduction of factory work in Bangladesh and elsewhere in the region is, for some women, creating a period of adolescence that they could not otherwise have expected. By working outside of the home and by generating their own income, these young women are experiencing a radically different transition into adulthood than are their counterparts, who are socialized for a traditional pattern of early marriage and childbearing. In the last article in this section, Amin and her collaborators examine the emergence of adolescence as a life-stage for young women in the Bangladeshi garment industry and its implications for their sexuality, reproduction, and marriage. Young women working in the garment factories develop peer networks that act as sources of information and support. These peer groups can help the individual evaluate alternative opportunities, including opportunities relating to marriage prospects. The critical reproductive health implication of early labor-force participation in garment work is that it appears to delay marriage and even after marriage to delay births because of the high opportunity costs that women associate with leaving the work force.

Consequences of Early Sexuality and Childbearing

In many traditional rural societies, the vast majority of women marry and start childbearing at very young ages.

Because of their physiological and social immaturity, the health risks associated with childbearing among these young women are more pronounced than are those among older women, regardless of whether they are married or not. In many cases, these health risks are exacerbated by a lack of appropriate prenatal care. Nevertheless, public attention tends not to focus on the potential dangers of immediate postpubertal childbearing among young, married women, not because the dangers are not known, but because strong cultural, political, and religious barriers exist to acknowledging them openly and, above all, to addressing their root causes (Zabin and Kiragu, in this issue).

As discussed above, today more young women are attending school and delaying marriage than ever before, and concerns about rising premarital fertility in developing countries have increased in recent years. With marriage postponed, young people are exposed to the risks of premarital intercourse for longer periods of time, and are, thereby, at greater risk of unintended pregnancies, induced abortions, and sexually transmitted diseases. Of particular concern to many policymakers has been the increase in pregnancy-related school dropouts. In most cases, schoolgirls who become pregnant have to resort to illegal (often unsafe) abortions or face expulsion from school. Girls who drop out of school as a result of pregnancy rarely return to complete their education. Hence their opportunities for socioeconomic advancement in later life are considerably reduced. The third section in this special issue contains two articles that discuss the consequences of early pregnancy and childbearing.

The economic consequences of adolescent pregnancy and childbearing in the United States have been the subject of an extended debate and controversy in recent years. Considerably less is known about the repercussions of early childbearing in the developing world, where micro-level data on life-cycle employment opportunities, earnings, and well-being are rare. Using data from her own work and from that of her colleagues in four Latin American and Caribbean countries, Buvinić finds that early childbearing is associated with negative economic rather than social effects, with the effects being strongest for poor mothers. The net result is that early childbearing reinforces the poverty of women with low incomes. Poor adolescent mothers work more and earn less than do other mothers, and the timing of their childbearing is directly related to their children's nutritional status. Out-of-wedlock adolescent childbearing does not seem to affect negatively the marriage options of young women. However, early childbearing is associated with larger ultimate family sizes and fewer traditional nuclear families and with the transmission of childbearing patterns across generations.

In the other article in this section, Zabin and Kiragu focus on the health consequences of early sexuality and fertility behavior both in and outside of unions in sub-Saharan Africa. Because of adolescents' physiological and social immaturity and the lack of adequate prenatal care available to them in most countries, their early childbearing poses significant health risks. Some of the many ailments that adolescent women can suffer during pregnancy include pregnancy-induced high blood pressure, anemia and hemorrhage, obstructed and prolonged labor, and postpartum infection. Although these ailments can occur at any age, they are often more pronounced and more dangerous in very young adolescents.

Interventions for Adolescents

The final two articles in this special issue discuss some of the policy and program implications of the current research on adolescents. In the penultimate paper, Hughes and McCauley argue that current health programming is falling short of helping young people acquire the knowledge, skills, and behaviors they need. Furthermore, several recent reviews point out that not enough is known about the effectiveness of current interventions and that a need exists for more rigorous evaluations of existing programs and for new prospective studies to test alternative models. As an interim measure, the authors identify a set of principles for implementing successful sexual and reproductive health programs for young people, based on their review of intervention programs around the world.

Finally, what, if anything, can the Western experience teach developing countries about the causes and consequences of teenage childbearing as they struggle to establish public policies around this issue? In the last article, Furstenberg takes on this difficult question by examining commonalities and differences between the experiences of Western nations that might possibly account for their different levels of teenage childbearing or explain why the United States is such a deviant case. He argues that a combination of demographic, economic, cultural, and political factors is to blame for establishing teenage childbearing as a social problem in the United States. Ideology, Furstenberg maintains, can be a more powerful force for setting public policy than rationality.

For many developing countries, adolescence is a life stage that is only now beginning to receive focused attention. The articles in this volume demonstrate that high-quality research is under way in this area. This special issue provides an overview of progress to date. The editors hope that it will prove useful to policymakers working in this area and to future researchers interested in building on what has already been accomplished.

Notes

- 1 The enrollment rate can exceed 100 because all children in primary school, regardless of age, are included in the rate's numerator, whereas the denominator is limited to ages 6 to 11 in most countries.
- 2 Median age at marriage was measured among 20–24-year-old women at the time of the most recent survey.
- 3 Estimates are based on past childbearing experience among 20–24-year-old respondents at the time of recent surveys.
- 4 Data from Botswana and Namibia were not included in this figure because these countries were clear outliers. A discussion of the unusual marriage pattern in these two countries can be found in Westoff et al. (1994).

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