



Review article

The State of Adolescent Sexual and Reproductive Health

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A B S T R A C T

In the 25 years since the 1994 International Conference on Population and Development, significant progress has been made in adolescent sexual and reproductive health and rights (ASRHR). Trend analysis of key ASRHR indicators at global, national, and subnational levels indicates that adolescent girls today are more likely to marry later, delay their first sexual experience, and delay their first childbirth, compared with 25 years ago; they are also more likely to use contraceptives. Despite overall progress, however, unequal progress in many ASRHR outcomes is evident both within and between countries, and in some locations, the state of adolescents' lives has worsened. Population growth in countries with some of the worst shortfalls in ASRHR mean that declining rates, of child marriage, for example, coexist with higher absolute numbers of girls affected, compared with 25 years ago. Emerging trends that warrant closer attention include increasing rates of ovarian and breast cancer among adolescent girls and sharp increases in the proportion of adolescents who are overweight or obese, which has long-term health implications.

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IMPLICATIONS AND CONTRIBUTION

This paper provides an overview of levels and trends in a wide range of factors related to ASRHR since 1994. The review shows that the environments in which adolescents live have changed globally. So have their SRHR needs. It also reveals significant lessons for future program intervention and policy development on ASRHR.

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Adolescence in a Changing World

Adolescence (in this article defined as adolescents aged 10–19 years) is a unique and critical phase in an individual's life. Representing the transition between childhood and adulthood, it is characterized by significant physical and psychosocial changes that bring both risks and opportunities for influencing the life prospects of young people. For this reason, issues that affect

adolescents have long-term health and social implications and require explicit attention.

In the context of the global demographic, health and social changes that have taken place since the International Conference on Population and Development (ICPD) in 1994, this article takes stock of global trends in the sexual and reproductive health and rights (SRHR) of adolescents over the past 25 years. It looks at the current status of adolescent SRHR against the aspirations of the ICPD Programme of Action [1], highlighting those who have benefited and those left behind. Finally, the article briefly discusses structural barriers that hinder inclusive development for adolescents.

New demographic realities

In 1994, when ICPD took place in Cairo, Egypt, there were 1.1 billion adolescents globally [2]. Twenty-five years later (in 2019), the world has an additional 163 million adolescents with diverse interests, needs, and concerns [2]. The profile and distribution of adolescents across world regions have changed significantly over this period. Sub-Saharan Africa has experienced the largest population increase at all ages, and among those aged 10–19 years, the population has nearly doubled, from 127 million in 1994 to 247 million in 2019. In contrast, Eastern and Southeastern Asia, Europe, and Northern America each has experienced significant population aging, with declines of approximately 12% in their adolescent populations [2].

Disparities by sex are notable, reflecting the phenomena of sex selection in some regions. Worldwide, the number of adolescent boys aged 10–19 years increased by 16.3%, from 554 million in 1994 to 644 million, whereas the number of adolescent girls increased by only 13.7%, from 529 million in 1994 to 601 million in 2019 [2]. Although Eastern and Southeastern Asia now have fewer adolescent girls and boys compared with 25 years ago, the decline in the adolescent girl population (14.6% decline over 25 years) has been larger than that among the adolescent boy population (9.6%) [2].

Adolescents today are living in a world of smaller households [3] and better health and longevity [2]. The past 25 years have witnessed an overall reduction in the total fertility rate from 3.0 children per woman in 1994 to 2.5 in 2019. The fertility decline has been most pronounced in Central and Southern Asia, falling from a total fertility rate of 3.9 births per woman in 1994 to 2.4 in 2019 [2].

In the past 25 years, average household size has declined gradually almost everywhere that data are available [3]. Today, a smaller share of household includes children aged <15 years old, whereas an increased share includes persons aged ≥60 years. More than 80% of households in Africa and Asia include at least one child, whereas fewer than 30% of households in European countries include children [3].

Changes in fertility have coincided with improved health and longevity, with life expectancy at birth increasing worldwide from 64.8 years in 1994 to 72.6 years today. Although remarkable progress has been made in closing the longevity differentials between countries and regions, large gaps remain. Life expectancy at birth in sub-Saharan Africa increased from 49.1 years in 1994 to 61.1 years in 2019 and yet still lags 11.5 years behind the global average [2].

Adolescents live in a world that has become increasingly both urban and mobile. In 2007, the global population became more urban than rural for the first time. In 2019, 56% of the world's population lives in urban areas, up from 44% in 1994 [4].

Although urbanization has leveled off in more developed countries, it continues to increase rapidly throughout the developing world. Sub-Saharan Africa has one of the fastest rates of urban growth; its urban population increased from 29% in 1994 to 41% in 2019. Across the world, a disproportionate number of young people are clustered in urban areas, drawn by a global decline in economic opportunities in the agricultural sector and the potential for better livelihoods in urban centers.

The proportion of the global population that has migrated internationally has increased only marginally since 1994, hovering just above 3%, but the number of displaced persons, at an estimated 69 million in 2018, is the highest since World War II [5]. In 2019, 14% of global migrant population were below the age of 20 years, equivalent to 38 million international migrants [6].

Changing burden of illness

Coinciding with these demographic shifts has been a significant shift in the burden of disease faced by adolescents. There are 250 million more adolescents living in countries characterized by multiple health burdens in 2016 than in 1990 [7,8]. Adolescents in these countries face a triple burden of health problems, ranging from communicable, reproductive health-related, and nutritional diseases to high prevalence rates of injury, violence, and noncommunicable diseases (including mental disorders).

The prevalence of anemia decreased over time for all adolescent health country groups as defined by the Lancet Commission on Adolescent Health and Wellbeing (The Commission identifies three adolescent health country groups as follows: (1) multiburden countries; (2) excess injury countries; and (3) noncommunicable disease-predominant countries.), but in multiburden countries, the prevalence of anemia remains high, with 40% of female adolescents in these countries considered anemic [7].

Other nutritional health risks have become more prominent, with a 120% increase in the prevalence of adolescents who are overweight or obese [7]. Overweight and obesity adversely affect many outcomes for lifelong health, including sexual and reproductive health. Excess weight and abdominal fat are risk factors for menstrual abnormalities [9], ovulatory dysfunction, altered endometrial function [10], miscarriage [11], and pregnancy and perinatal complications [12]. The increase in overweight and obesity occurred in all continents but was particularly prominent among adolescent girls living in countries with a high burden of communicable, maternal, and nutritional conditions [7].

In terms of substance use and abuse, the prevalence of tobacco use among adolescents decreased between 1990 and 2016 except among females in multiburden countries, where, although levels remain low, a small annual increase has occurred since 1990 [7]. Daily smoking prevalence was higher among adolescent males than females across all country groups; it was highest among countries with higher rates of injury (11% of males and 3% of females) and countries with higher rates of noncommunicable diseases (17% of males and 5% females) [7]. The prevalence of binge drinking changed little over time, but females in multiburden countries had higher annual increases from 1990 to 2016 (.7%) [7]. Alcohol use has implications for ASRHR, as alcohol consumption is associated with sexual risk taking as well as gender-based violence [13–16].

Globally, the share of disability-adjusted life years (DALYs) (Disability-adjusted life years for a disease or health condition

are calculated as the sum of the years of life lost because of premature mortality in the population and the years lost due to disability for people living with the health condition or its consequences.) attributable to depressive disorders, anxiety disorders, and conduct disorders among those aged 15–19 years (both sexes) increased only marginally between 1994 and 2017, but there are stark and consistent sex differentials in these conditions across all regions and throughout the reference period [17]. Conduct disorders (The WHO ICD-11 (version 4/2019) defines conduct disorder as “a repetitive and persistent pattern of behaviour in which the basic rights of others or major age-appropriate societal norms, rules, or laws are violated such as aggression towards people or animals; destruction of property; deceitfulness or theft; and serious violations of rules”. <https://icd.who.int>) are disproportionately pronounced among males, whereas anxiety, depressive disorders, and panic disorder are more common among females. These sex differentials are notable from the initial age of onset in young adulthood [18,19].

New social context

New means of communication, knowledge sharing, and social media are transforming the lives of adolescents particularly. Youth are the most likely of all age groups to be connected through social media, with approximately 71% of those aged 15–24 years online, compared with 48% of all persons [20]. Connecting to the Internet brings social, educational, and employment opportunities, but social media have also given rise to new and emerging forms of bullying, exploitation, and predation [21], including shifting norms in sexual and social exchange that are not fully documented and for which protective measures have not been developed.

Inequalities in digital access reinforce other inequalities, posing a “digital divide” for many young persons living in poverty, particularly in more rural locations where digital connectivity has yet to penetrate. For example, although 78% of persons in Europe and North America report regular use of the Internet, the corresponding percentage is 20% in sub-Saharan Africa and 28% in Central and Southern Asia [22]. High costs, English language dominance, lack of relevant content, and the lack of infrastructure are important barriers [23]. The growing development of simple smartphones with a few core platforms, for example, WhatsApp and Facebook, at very low prices is increasing smartphone uptake even among the poorest in South Asia. Nonetheless, those growing up in poverty remain the least likely to access and develop digital skills, and the odds worsen for girls or someone with a disability [24]. Better digital infrastructure, new protective regulations, and a revolution in both access and professional use of digital skills will be essential to bring marginalized youth into the information age.

Educational attainment and decent work (International Labour Organization defines decent work as “opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men.” <https://www.ilo.org/global/topics/decent-work/lang-en/index.htm>) exert a powerful influence on the likelihood that individual adolescents will experience poor SRHR outcomes. Sustained school enrollment for girls may affect the age at first sex and first marriage, the likelihood of

using contraception, and, therefore, the likelihood of becoming pregnant at a young age and the risk of acquiring sexually transmitted infections (STIs), including HIV [25]. These associations reflect a complex interplay of parallel changes in community norms, gender values, aspirations for the future, and opportunities for young people, but the widespread and persistent association between educational enrollment and SRHR outcomes underscores the critical role of educational access for the realization of sexual and reproductive health and rights for young people, especially for girls.

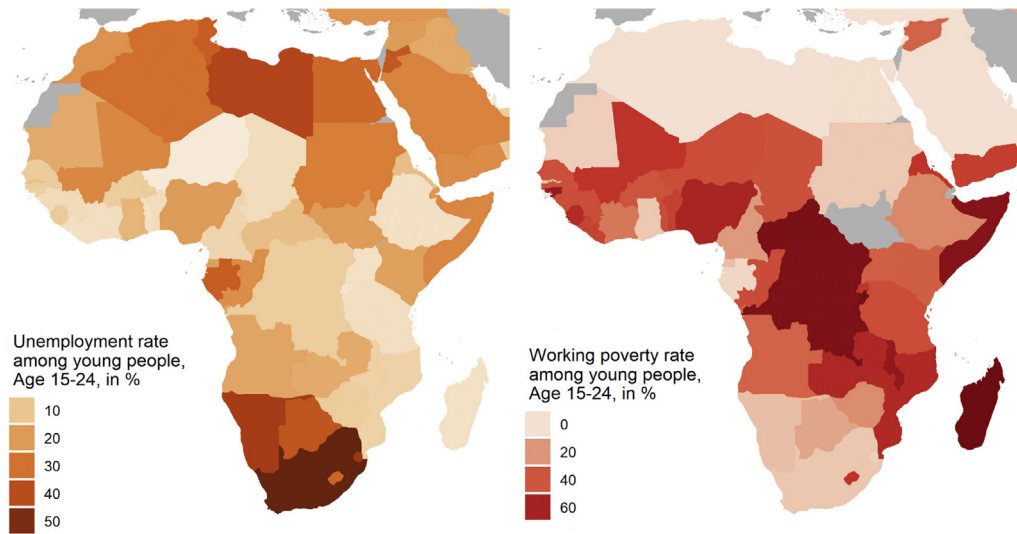
Globally, enrollments in education have increased significantly at all education levels. The gross enrollment ratio (GER) in secondary school increased from 56.1% to 76.4% between 1994 and 2016, and the GER in tertiary schools increased from 15.0% to 37% over the same period [26].

Remarkable progress has been observed in sub-Saharan Africa, with a near doubling of enrollments in secondary school since 1994, but enrollment remains the lowest of all regions, at 42.5%, and gross tertiary education enrollment is only 8.4% in the region [26]. Most of the region’s countries also achieved large gains in school completion, and yet such levels remain generally low. For example, the completion rate for lower secondary education in Burundi increased from 6.0% to 26.0% between 2000 and 2017 [26]. However, the contrast in secondary school enrollments and completion between sub-Saharan Africa and other regions is substantial. The GER in secondary school now stands at 87% in Eastern and Southeastern Asia, 72% in Central and Southern Asia, 80% in Western Asia and Northern Africa, and 95% in Latin America and the Caribbean, with lower secondary school completion rates exceeding 50% in most countries [26].

Despite improvements in educational enrollment and completion at all levels, disparities by sex, geographic location, and wealth remain. For instance, in 1994, boys significantly outnumbered girls in tertiary education enrollment in sub-Saharan Africa and Central and Southern Asia, as indicated by gender parity indexes (GPI is calculated by dividing the female value of an indicator by the male value of the same indicator. GPI equal to 1 indicates parity between females and males. In general, a value less than 1 indicates a disparity in favor of boys and a value greater than 1 indicates a disparity in favor of girls.) of .57 and .58, respectively. By 2016, both regions had progressed toward parity, albeit at a different pace, with GPIs of .72 and .96, respectively [26].

Overall, as global poverty has declined, so too has the global share of young employed persons living below the poverty line, which has declined by half since 2000, particularly because of extraordinary improvements in Asia and the Pacific and in Latin America and the Caribbean and the movement of more young women into the labor market since 1994. Sex disparities in unemployment have widened slightly over the past 25 years, with young women in 2019 more likely to be unemployed than young men, at 12.5% and 11.4%, respectively [27].

However, economic gains for young people are below those recorded for the population aged ≥ 25 years, and young people remain disproportionately affected by economic shocks, structurally weak labor markets, and the lack of job opportunities offering a decent wage [28]. Compared with persons aged ≥ 25 years or older, young persons aged 15–24 years are approximately three times more likely to be unemployed [27], and they remain the only age group globally that has yet to see a substantial recovery since the global financial crisis of 2008, outside recent gains in North America and Europe. In select locations, working poverty rates for young people are both a



Source: [27].

Figure 1. Unemployment of young people aged 15–24 years, 2019 (left), and working poverty among young people aged 15–24 years living on US\$1.90 a day (right), 2019.

consequence and cause of broader social disruptions. For example, in the Arab states, the working poverty rates for young men have increased sharply since 2000 [27], both reflecting and contributing to political instability.

Although young people struggle with unemployment in some countries, in others, they contend with working poverty (employed but living on less than US\$1.90 per day). This is illustrated across Africa, where a distinct geographic pattern: young people encounter high unemployment in Northern and Southern Africa, but high rates of working poverty across Central Africa (Figure 1). Efforts to address poverty among young people demand attention to both of these conditions.

Overall, the shifting demographic, health, and social changes since 1994 reflect extraordinarily positive trends in development, including for a majority of adolescents. Poverty has declined, and trends in education continue upward across all regions. Access to new digital means of communication is shrinking the world for young people, and information about new models and norms from other countries are changing the aspirations of young people everywhere. These trends, in general, have also led to major gains in the SRHR of adolescence since 1994. The remainder of this article offers a closer look at the successes and shortfalls in the SRHR of adolescents, underscoring the strong evidence of progress but also highlighting where they are at risk of being left behind.

Trends in Adolescent Sexual and Reproductive Health and Rights Since 1994

The data used in this analysis are drawn from a range of publicly available global and sectoral sources. These include the Demographic and Health Surveys (DHS) [29], the Multiple Indicator Cluster Surveys [30], and World Population Prospects 2019 [2]. Data sources, definitions, and the availability of data on specific adolescent sexual and reproductive health indicators are summarized in Annex 1. Trends since 1994 at global, regional, and national levels are provided, with highlights from select

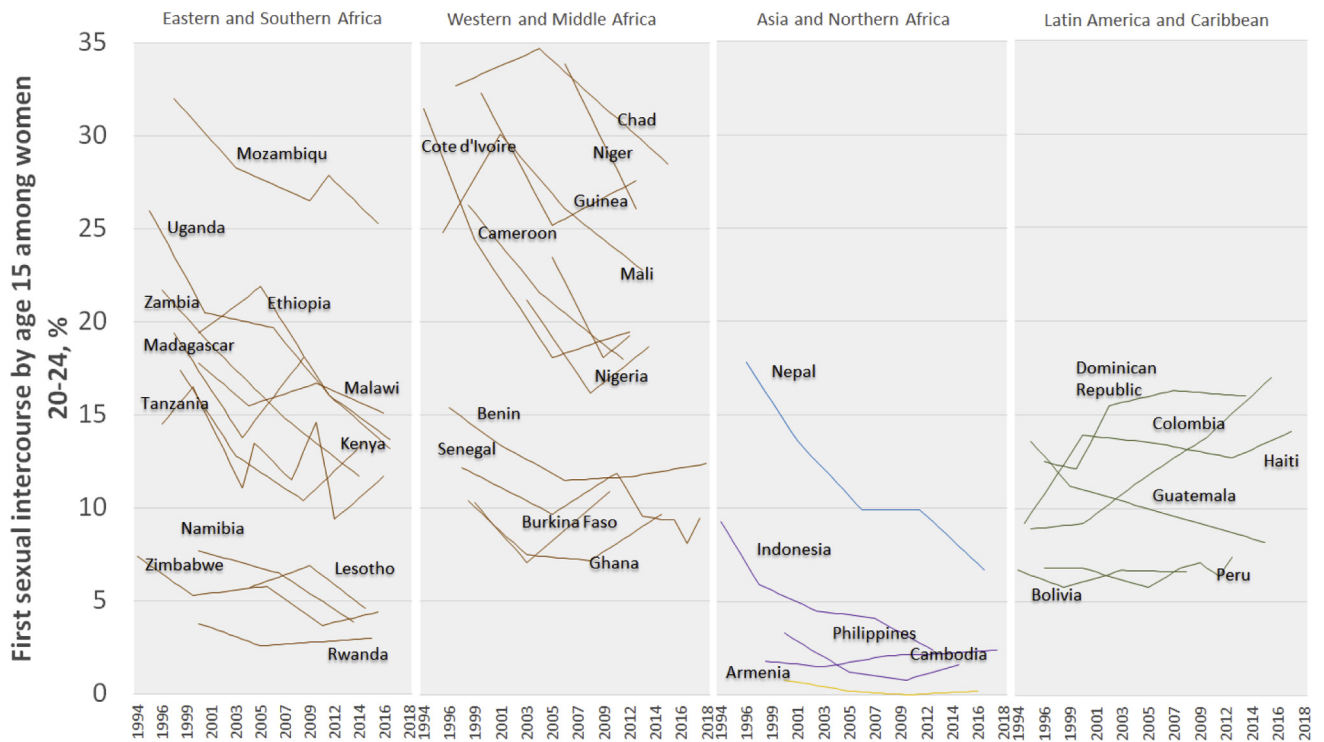
countries and subnational areas. Global and regional estimates are computed as weighted averages of country-level data, weighted by population data from the World Population Prospects 2019. The regional groupings used are those of the Sustainable Development Goals (i.e., sub-Saharan Africa, Northern Africa and Western Asia, Central and Southern Asia, Eastern and South-Eastern Asia, Latin America and the Caribbean, Oceania, and Europe and Northern America) whenever possible [31].

Age at first sex

The Guttmacher-Lancet Commission on SRHR notes that, as young people are staying in school longer, marrying later, and using contraception, marriage, and sexual activity are increasingly delinked—that is, marriage does not always precede sexual activity, and neither sexual activity nor marriage necessarily leads to pregnancy and childbirth [25].

Since 1994, adolescent girls in most countries have delayed sexual initiation; of 35 countries with at least three national surveys conducted since 1994, 29 show a declining trend [32]. The regional exception is Latin America, where the proportion of girls having sex before age 15 years remained static or increased in five of six countries surveyed (Figure 2). Within Latin America and the Caribbean, the largest increase was in Colombia, where the proportion of girls reporting sex before age 15 years increased from 9% in 1995 to 17% in 2015; the Dominican Republic and Haiti follow reporting levels close to Colombia in 2013 and 2016, respectively [32].

In sub-Saharan Africa (presented as Eastern and Southern Africa and Western and Middle Africa in Figure 2), 23 of 24 countries saw declines in those reporting sex before the age of 15 years, with declines ranging from 8% in Mali between 1995 and 2013 to 47% in Uganda between 1995 and 2016 [32]. Sexual activity among young adolescents (aged 10–14 years) is highest across sub-Saharan Africa compared with other regions, reflecting the higher rates of child marriage in the region; most early sex in the region is within the context of marriage. In some



Source: [32].

Figure 2. Percentage of women aged 20–24 years who had first sexual intercourse before age 15 years, by country, 1994–2018.

countries, progress has been meagre. In Chad, the proportion dropped from 33% in 1996 to 29% in 2015, remaining the highest national proportion worldwide.

Among adolescents across 29 countries, including 25 countries of sub-Saharan Africa, three in Latin America and the Caribbean and one in Central and Southern Asia, there was an overall decrease in sexual encounters with a nonmarital, non-cohabiting partner, and an increase in using a condom at the sex. Between 1999/2008 and 2009/2018, the proportion of adolescents who used a condom in these encounters rose from 27% to 37% among girls and from 35% to 48% among boys in sub-Saharan Africa. Increases in India were similar [32].

Age at first marriage

The proportion of women aged 20–24 years who were married before the age of 18 years decreased in the past 25 years, from one in every four to one in every five (Table 1). However, because of population growth in highly affected countries since 1994, the absolute number of girls married before age 18 years has increased slightly to an estimated 12 million girls (Marriage is defined in this article as married or in union. A union involves a man and a woman regularly cohabiting in a marriage-like relationship.) [33]. To end the practice of early marriage by 2030, the annual rate of reduction, at .7% over the past 25 years, will need to increase to 23% [33]. Very early marriage, defined as marriage before age 15 years, affects 5% of girls globally and 12% in sub-Saharan Africa [34].

Northern Africa and Western Asia and Southern Asia (particularly India) have witnessed the largest declines in child marriage since 1994. In Southern Asia, a girl's risk of early

marriage declined by more than 40%, from 53.3% to 29.9% (data not shown). In Latin America and the Caribbean, there is no evidence of progress, with a constant 25% of girls affected (Table 1) [34,35].

Wide variations in the percentage of girls marrying before age 18 years are found both within and across countries (Figure 3) [29,30]. The global burden of child marriage is shifting to sub-Saharan Africa, where rates of progress need to be accelerated significantly to offset the effects of population growth on the number of child brides. Countries such as Ethiopia, where the prevalence dropped by one-third in 10 years, point to the possibility of progress.

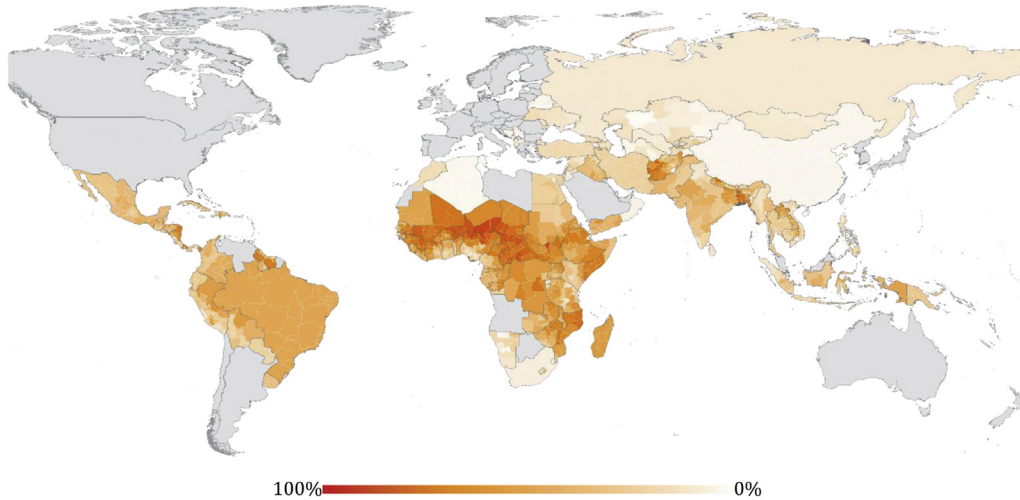
In 82 countries where child marriage data are available for boys as well as girls, the prevalence of child marriage is significantly lower for males than females. Only one in every 25 boys (3.8%) marries before reaching age 18 years, and marriage before age 15 years is extremely rare among males, at .3%. Even in

Table 1

Percentage of women aged 20–24 years who were first married or in union before age 18 years, by select sustainable development goal region, 2003 and 2018

	2003	2018
Sub-Saharan Africa	41.8	37.2
Northern Africa and Western Asia	23.5	17.8
Central and Southern Asia	52.5	29.4
South-Eastern Asia	19.7	15.2
Latin America and the Caribbean	24.1	24.7
World	27.2	20.8

Source: United Nations Children's Fund (UNICEF) global databases, 2019. Available from [34].



Disclaimer: The boundaries shown on this map do not imply the expression of any opinion whatsoever on the part of the United Nations Population Fund concerning the legal status of any country, territory, city or area or of its authorities, or concerning its boundaries.

Source: [29,30,35].

Figure 3. Percentage of women aged 20–24 years who were first married or in union before age 18 years, by subnational areas, 2003–2016.

countries where rates of child marriage among females are relatively high, early marriage among boys is rare. For example, in Niger, where three fourth of girls were married before age 18 years (76.3%), and one-quarter before age 15 years (28%), only 5.7% of boys married before 18 years, and virtually none were married before age 15 years [29,30].

Female genital mutilation

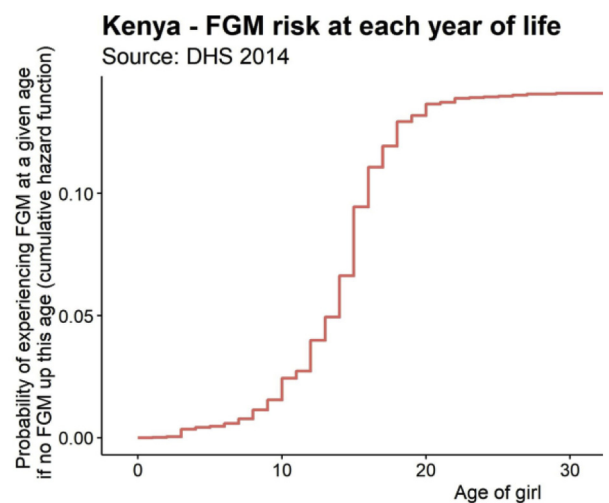
Along with child marriage, female genital mutilation (FGM) is a harmful practice and has no health benefits for girls and women. FGM is a violation of the human rights of girls and women and has garnered explicit attention in the sustainable development goals; sustainable development goals 5.3 calls for eradication of both practices by 2030. Although the age at which FGM has been performed varies among countries, girls can be at risk at any age from birth through adolescence, as is evident in the case of Kenya (Figure 4). FGM carries lifetime consequences for obstetric risk, psychological trauma, and sexual experience [36].

Although DHS included an FGM module as early as 1989, in the Sudan DHS 1989/1990, the years since ICPD have seen both a positive growth in the availability of data on FGM. Nationally representative surveys are now available for 31 countries (Benin, Burkina Faso, Central African Republic, Chad, Cameroon, Côte d'Ivoire, Djibouti, Egypt, Ethiopia, Eritrea, Gambia, Ghana, Guinea, Guinea-Bissau, Indonesia, Iraq, Kenya, Liberia, Maldives, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Somalia, Sudan, Tanzania, Togo, Uganda, and Yemen.), informing growing support for eradication of the practice. Research and data collection frequency vary, with Cameroon collecting data on FGM only once, whereas Senegal now collects annual data [29].

The United Nations Children's Fund (UNICEF) estimates, based on available data, that FGM prevalence among girls aged

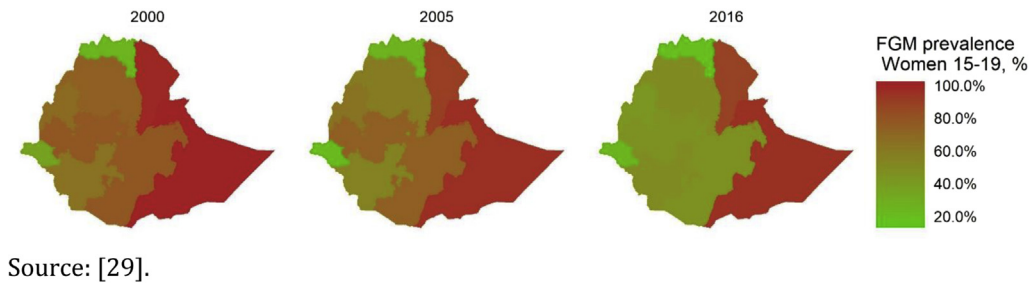
15–19 years has declined from 35% in 2003 to 25% in 2018 in sub-Saharan Africa and from 92% to 74% in Northern Africa [34]. Despite progress, FGM is driven by deeply entrenched norms in many communities, resulting in large variations at the subnational level and uneven progress in eliminating FGM (Figure 5). In Ethiopia, the North East has experienced slower reduction in FGM than the rest of the country, resulting in larger subnational disparities.

It is flawed to assume a direct link between attitude and behavior change, as is evidenced by many girls who have



Source: [29].

Figure 4. Cumulative hazard function—FGM risk at each year of life in Kenya, 2014.



Source: [29].

Figure 5. FGM prevalence among women aged 15–19 years at subnational level in Ethiopia, percent, 2000–2016.

undergone FGM are daughters of women who opposed the practice. Data, however, show that a daughter’s likelihood of being cut is significantly higher when her mother supports the practice [37]. Overall, fewer adolescent girls and women believe the practice should continue in most countries where comparable data are collected more than once, with the exception of Guinea, Mali, and Sierra Leone [32]. In Ethiopia, 53.4% of adolescent girls support the continuation of the practice in 2000, compared with 13.6% in 2016 [32].

Violence against adolescent girls and young women

Worldwide, many young people experience violence that harms their health and dignity and erodes their well-being. For females, much of that violence is perpetuated by intimate partners. Data from 106 low- and middle-income countries indicates that 18% of ever-partnered women and girls aged 15–49 years experienced physical and/or sexual violence from a current or former intimate partner in the preceding 12 months [34]. Adolescents aged 15–19 years can be particularly vulnerable; based on data from 55 countries,

approximately 20% of adolescents had experienced intimate partner violence in the preceding 12 months. Wide disparities are apparent: DHS data [32] show that, although <4% of ever-partnered adolescents have experienced intimate partner violence in Armenia, Ukraine, Kyrgyzstan, and Comoros, more than 40% of adolescents have experienced it in Gabon, Tonga, Namibia, and Equatorial Guinea.

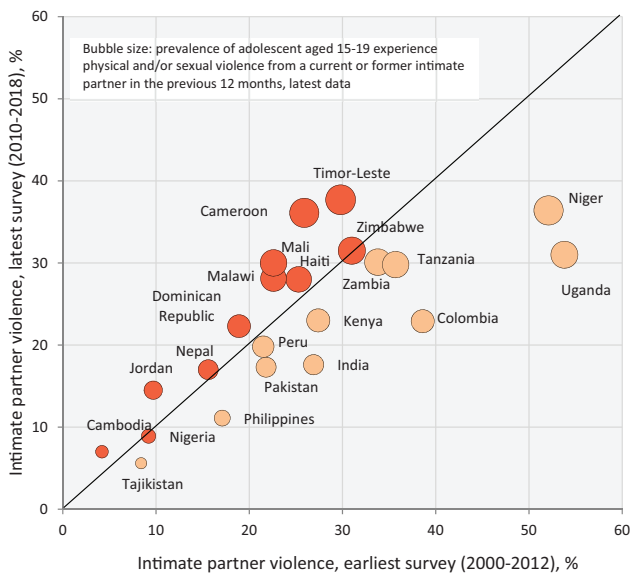
As with data on FGM, there has been a substantial increase since 1994 in available data on violence against women—particularly since the millennium. Although many countries still lack national surveys, more than 100 countries have conducted at least one relevant survey since 1995; more than 40 have conducted at least two surveys. In 11 of 22 countries with at least two data points over this period, the prevalence of adolescent girls aged 15–19 years who experienced physical and/or sexual violence by a current or former intimate partner in the preceding 12 months has been constant or even increasing (Figure 6).

More attention is rightfully being paid to the gender dynamics underlying violence against women, including the gender socialization of adolescents. Gender socialization during adolescence shapes attitudes and behaviors that underpin sexual and reproductive rights [38], including both attitudes to violence and violent behaviors. DHS data [32] show, that in 18 of 19 countries with at least three surveys since 1994, fewer adolescent boys justify wife-beating today (Senegal is the one exception). In some countries, progress has been particularly dramatic; for example, in Ethiopia, the percent of adolescent boys who justified wife beating in some situations declined from 82% in 2000 to 33% in 2016.

Adolescent contraceptive use

Globally, more than 21% of adolescent girls, married or in union, are using a modern contraceptive. This is double the rate of 10 years ago (Table 2). Latin America has the highest modern contraceptive prevalence rate, at 57%, while use in sub-Saharan Africa has increased most quickly, from 4% to 15% in the last two decades. Globally, unmet need remains relatively constant at 23%, reflecting rising demand. In the developing world, an estimated 38 million girls were sexually active (Defined as having had intercourse in the past 3 months.) but wanted to avoid pregnancy in 2016, but only 15 million reported use of a modern contraceptive, leaving 23 million at risk of unintended pregnancy [39].

The rate of contraceptives use is much higher among unmarried sexually active adolescent girls, at 51%, than among married or in union adolescent girls, at 20%; so too is the unmet need for family planning, at 41% and 23%, respectively [29,30]. In developing countries, male condom use accounts for close to 70% of total modern contraceptive use among unmarried



Source: [32].

Figure 6. In half the countries with comparable data, the experience of intimate partner violence remained constant or even increased among adolescent girls, 2000–2012 and 2010–2018.

Table 2
Contraceptive prevalence rates (modern method and traditional method) and unmet need for contraception among married or in union adolescent girls aged 15–19 years, by sustainable development goal region, 1994–2005 and 2006–2018

	Unmet need for contraception, earliest survey, 1994–2005 (%)	Unmet need for contraception, latest survey, 2006–2018 (%)	Contraceptive prevalence, traditional methods, earliest survey, 1994–2005 (%)	Contraceptive prevalence, traditional methods, latest survey, 2006–2018 (%)	Contraceptive prevalence, modern methods, earliest survey, 1994–2005 (%)	Contraceptive prevalence, modern methods, latest survey, 2006–2018 (%)
World	25.7	22.6	4.2	3.7	10.4	21.4
Sub-Saharan Africa	24.5	26.5	4.6	1.7	3.8	14.8
Western Asia and Northern Africa	23.4	14.7	7.3	7.5	13.7	15.9
Central Asia and Southern Asia	27.1	21.6	3.5	4.6	7.0	17.2
Eastern Asia and Southeastern Asia	15.4	19.1	2.5	1.8	29.2	46.3
Latin America and the Caribbean	28.9	19.2	7.9	4.5	38.3	57.3
Oceania	—	—	3.6	6.4	5.4	12.1
Northern America and Europe	—	—	19.6	11.4	28.1	46.1

Sources: [29,30].

sexually active adolescent girls aged 15–19 years, whereas those married or in union have access to a wider range of methods [40]. Among the latter, the pill and injectable together account for more than 70% of total modern method use, but with notable regional variations [40]. Although injectables are used predominantly in Eastern and Southern Africa (close to 60%), the pill is most common in the Arab States region (55%), and male condoms in Eastern Europe and Central Asia (55%) [40].

Adolescent pregnancy and childbirth

Globally, the latest United Nations Population Division estimates [2] on adolescent birth rate by country show that in almost all countries, early childbearing has become less common since the early 1990s (Figure 7). It decreased by one-third (34.4%) from 1990–1995 to 2015–2020 and now stands at 42.5 births per 1,000 women aged 15–19 years. The larger share of this improvement occurred during the 1990s and early 2000s [2]. The global decrease was deeply affected by the 72.5% decline in Central and Southern Asia, from 95.3 to 26.2 births, which, in turn, was driven largely by India, where the adolescent birth rate decreased from 94.0 to 13.2 births per 1,000 women.

Adolescent birth rates in sub-Saharan Africa and Latin America and the Caribbean remain the highest worldwide, at 104 and 63 births per 1,000 adolescent girls, respectively [2]. In sub-Saharan Africa, adolescent birth rates exceed 100 births per 1,000 women aged 15–19 years in 23 countries. Among these, adolescent birth rates are highest in Niger (187 births) and Mali (170 births). Between 1990–1995 and 2015–2020, adolescent birth rates increased in Lesotho (88–93 births) and remained largely unchanged in Somalia (102–100 births) and the Democratic Republic of the Congo (127–124 births) [2].

Differences are notable within many countries. In Nepal, for example, the percentage of women giving birth before 20 years ranges from 35% to 53% across subnational regions [41].

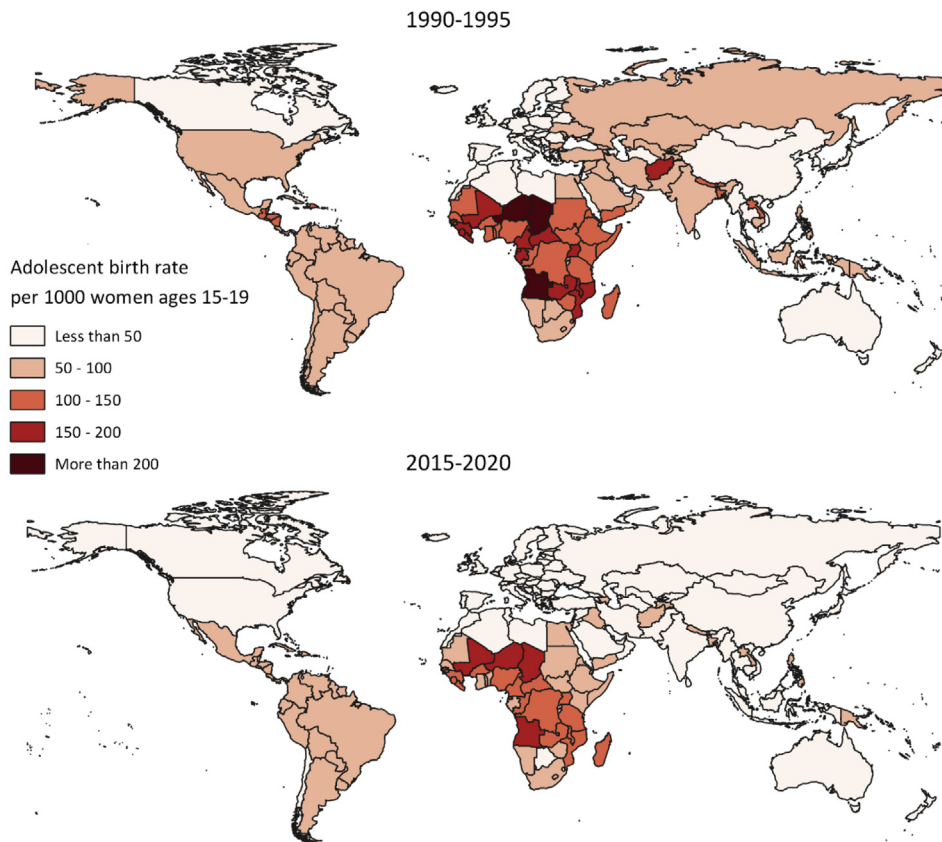
In Latin America and the Caribbean, despite descending trends in total fertility, the proportion of births to adolescent mothers still accounts for 20%, the highest regional proportion in the world [42,43]. The adolescent birth rate differs greatly by household wealth (Figure 8): the rate in the lowest wealth quintile is, on average, 4.5 times larger than that in the highest wealth quintile [32]. Early childbearing in the most disadvantaged groups further increases their vulnerabilities over the life course [44,45], reinforcing social and economic inequalities.

Although very early childbearing, among adolescents aged 10–14 years, is in general rare, elevated levels of early childbearing are found in a small number of countries in sub-Saharan Africa and Latin America and the Caribbean [46]. Only four countries in the world have more than 10 births per 1,000 girls aged 10–14 years: Angola, Mozambique, Nigeria, and Bangladesh. Between 2000–2007 and 2010–2017, age-specific birth rates among girls aged 10–14 years declined in almost all countries with data [46].

Closely spaced pregnancies among young mothers present further risks for both the mother and the child [47]. However, measurement of the extent and characteristics of repeated adolescent pregnancy is, in general, very limited [48].

Pregnancy-related morbidity and mortality

High-quality age-disaggregated maternal mortality and morbidity data are limited, as many highly affected countries



Disclaimer: The boundaries shown on this map do not imply the expression of any opinion whatsoever on the part of the United Nations Population Fund concerning the legal status of any country, territory, city or area or of its authorities, or concerning its boundaries.

Source: [2].

Figure 7. Changes in adolescent birth rate (aged 15–19 years) between 1990–1995 and 2015–2020.

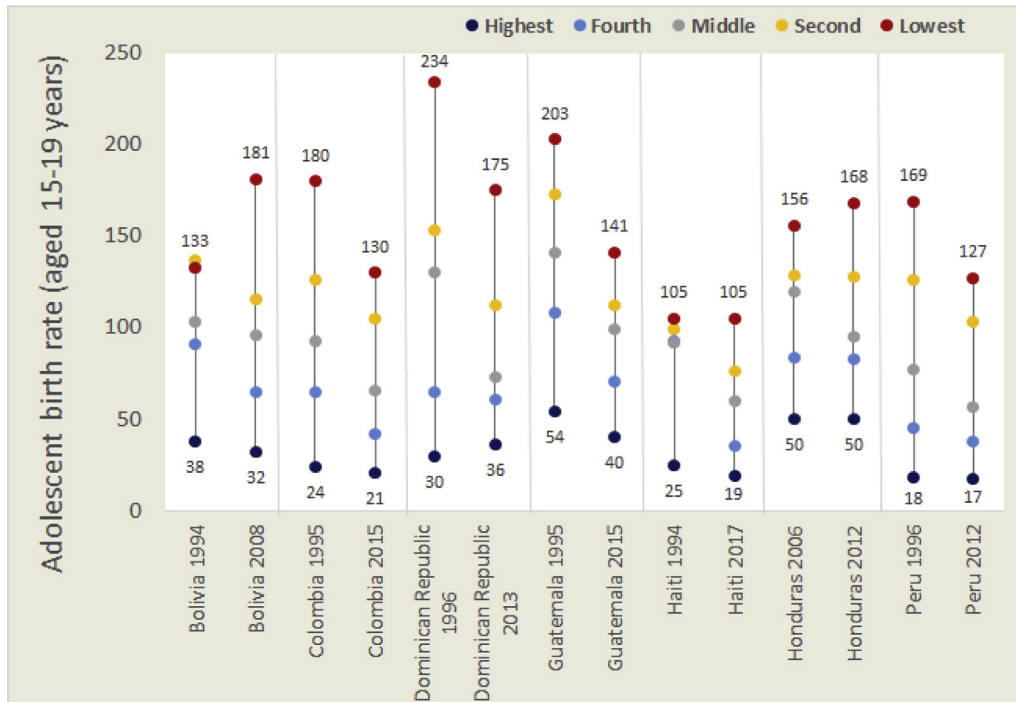
lack the necessary systems for data collection, such as complete and accurate civil registration vital statistics systems and other health information systems. Censuses and nationally representative household surveys are likely to collect pregnancy-related mortality, and estimates have very high uncertainty limits, the data that they refer to go back to past years and are conducted every 2 to 5 years for household surveys and around every 10 years for censuses. As a result, up-to-date information is lacking [49,50].

Although data are sparse, pregnancy and childbirth complications are estimated to be the leading cause of death among 15- to 19-year-old girls worldwide [51]. Adolescents aged 15–17 years have greater maternal health risks than women just a few years older [52], reflecting multiple compounding vulnerabilities, both social and biological. Those with early pregnancy are more likely to live in poverty, have less education, and have less access to quality care. They also are at heightened clinical risk from malaria in endemic areas [53]. Relative to older women, adolescents have a higher risk of pre-eclampsia, eclampsia, puerperal endometritis, and systemic infections [54], and they are more likely to experience preterm birth, stillbirths, low birth weight, and neonatal mortality [55]. Studies carried out

in sub-Saharan Africa with women with obstetric fistulae have reported that 35%–40% of these women first developed the condition as adolescents [56].

Based on a recent study of 144 countries [57], the point estimate for maternal mortality ratio among 15- to 19-year-olds is at 260 per 100,000 live births, higher than the estimate for those aged 20–24 years (190 per 100,000 live births), but lower than for those aged 35 years and older (710–2,800 per 100,000 live births). Africa has the highest maternal mortality ratio among adolescent girls, at 570 per 100,000 live births, followed by the Eastern Mediterranean (430 per 100,000 live births) and Southeast Asia (130 per 100,000 live births) [57]. In a multi-country study, adolescent mothers in sub-Saharan Africa accounted for 20% of all maternal deaths, most of which were because of such complications as hypertensive disorders, pre-eclampsia, and unsafe abortion [54].

Data on the levels and trends in abortion measures that are specific to adolescents are scarce, particularly among developing countries [58]. Estimates by the Guttmacher Institute show that adolescent abortion rates in developed countries are generally low, ranging from 3 to 16 per 1,000 women aged 15–19 years and have been trending downward



Source: [32].

Figure 8. Adolescent birth rate (ages 15–19 years) by wealth quintile in selected Latin America and Caribbean countries, 1994–2015.

in many of these countries; comparable trend data are unavailable for developing regions [58]. It is however generally accepted that unsafe adolescent abortion rates are relatively high in Africa and Latin America and the Caribbean and low in Asia, excluding Eastern Asia [59].

Barriers to access to health care constitute a key reason for the many adverse outcomes of adolescent pregnancy and childbearing. For example, pregnant adolescents in many low- and middle-income countries attend antenatal care at least one time but tend to seek care late, have fewer visits, and receive fewer components of care than older first-time mothers. In sub-Saharan Africa, reasons for lack of access to essential and timely antenatal care are financial constraints, insufficient information about the risks of pregnancy, and the benefits of antenatal care, stigma in the community, and disrespectful treatment by health workers [60]. Worldwide, percentage of births assisted by a skilled birth attendant increased from 62% to 81% between 2000–2005 and 2013–2018 [61]. Despite progress, lack of quality care during pregnancy and delivery still largely contributes to the

estimated 295,000 maternal deaths in 2017 [62], and many of which are adolescent mothers.

Sexually transmitted infections

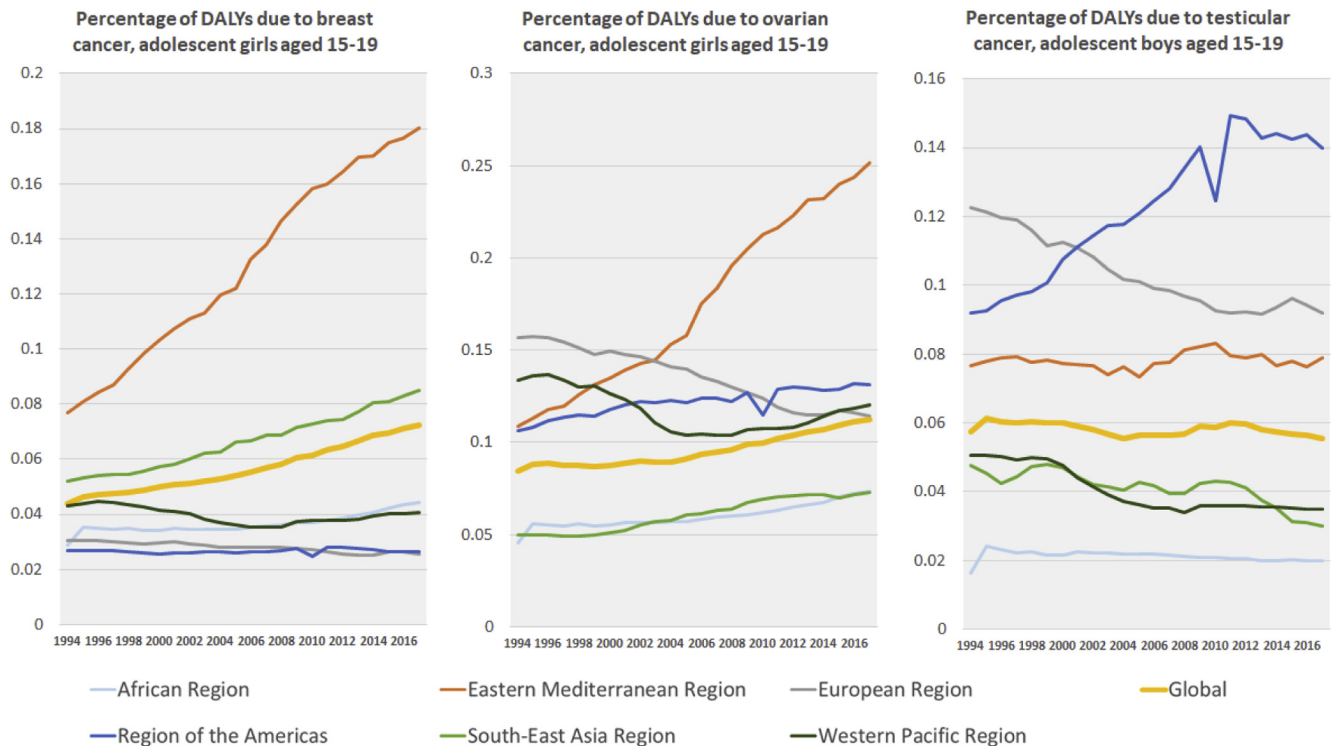
The global prevalence of all STIs, with the exception of chlamydia, has increased since 1994 among adolescents (Table 3). A small increase in the prevalence of STIs among adolescents represents a significant increase in the absolute burden because of the growth of the young adult population in highly affected countries. For example, the increase in the prevalence of genital herpes worldwide from 4.0% in 1994 to 4.3% in 2017 corresponds to an increase of five million 15- to 19-year-olds affected [17].

Genital herpes is the most common STI, affecting 4.3% of adolescents in 2017. The highest prevalence of genital herpes is in Africa, followed by the Americas; this has been the case since 1994 for both younger (10–14 years) and older adolescents (15–19 years). Prevalence rates of gonorrhoea are also highest in Africa. Globally, the prevalence of all STIs is higher among females than males, although differentials vary by region and over time.

Table 3
Global prevalence of selected sexually transmitted infections among adolescents (aged 15–19 years), 1994–2017

Type of STIs	Percentage		Absolute number (N)		Percent change in (N) between 1994 and 2017
	Year 1994	Year 2017	Year 1994	Year 2017	
HIV	.12	.17	.6 million	1.0 million	64.8
Genital herpes	4.03	4.33	20.5 million	25.6 million	25.1
Gonorrhoea	1.49	1.51	7.6 million	8.9 million	17.6
Chlamydial infection	1.43	1.37	7.2 million	8.2 million	13.1
Trichomoniasis	1.22	1.39	6.2 million	8.2 million	33.7
Syphilis	.54	.59	2.8 million	3.5 million	27.4

STI = sexually transmitted infection.



Source: [17].

Figure 9. Percentage of Disability-adjusted life years attributed to select reproductive cancers among adolescents aged 15–19 years, World Health Organization regions, 1994–2017.

HIV/AIDS

Of all STIs, no epidemic has led to greater devastation than HIV and AIDS in the past 25 years. In 1994, HIV/AIDS accounted for less than a percentage point (.2%) of DALYs among young adolescents, aged 10–14 years. By 2017, it accounted for 7% of DALYs. For older adolescents, aged 15–19 years, HIV/AIDS went from 1% of DALYs in 1994 to 6.8% by 2017 [17].

Over the 25 years from 1994 to 2017, AIDS-related deaths totaled an estimated 773,000 among 10- to 19-year-olds. The burden of death and disability wrought by HIV has been most pronounced in sub-Saharan Africa, where it remains the number one cause of DALYs lost for both males and females, for both young (10–14 years) and older (15–19 years) adolescents. In no other region is the impact as severe. Indeed, in all other regions, HIV is not among the 10 top causes of DALYs for this age group [17].

Globally, the number of 10- to 19-year-olds living with HIV increased from approximately 920,000 in 1994 to 1.6 million in 2018, reflecting both the spread of new infections and the availability of treatment that has allowed people to live longer with HIV [63]. In sub-Saharan Africa, deaths attributed to AIDS among adolescents aged 10–19 years started to decline around 2010, from an estimated 41,000 deaths in 2010 to an estimated 30,000 deaths in 2018 [63], due in part to the increasing availability of antiretroviral treatment. Sex disparities among adolescents aged 10–19 years are noteworthy in the region. In 2018, an estimated 580,000 adolescent boys were living with HIV,

compared with an estimated 880,000 adolescent girls, whereas in 1994, the corresponding figures were 620,000 adolescent girls and 155,000 adolescent boys [63].

Adolescents acquire HIV through various modes. Although global data on the proportion of adolescents who were infected through mother-to-child transmission are not available, a national study in Kenya suggests that mother-to-child transmission may account for 56% of infections among 10- to 14-year-old there [64].

In 2018, more than half of new HIV infections occurred among key populations and their sexual partners, including young men who have sex with men, transgender persons, young sex workers and their clients, young people who inject drugs, and young prisoners [65]. Making age-disaggregated data available for key populations is critical.

Reproductive cancers

With growing worldwide attention to cancer, data are increasingly available. Although the prevalence of reproductive cancers is generally low among adolescents, the contribution of ovarian and breast cancers to overall DALYs among adolescent girls aged 15–19 years increased between 1994 and 2017, as has the contribution of testicular cancer to DALYs among adolescent boys in the Americas. Globally, the proportion of DALYs attributable to ovarian cancer increased from .08% in 1994 to .11% in 2017, but it increased from .11% to .25% in the Eastern Mediterranean (Figure 9) [17].

Emerging Areas, Data Gaps, and Conclusions

In the 25 years since the ICPD, many aspects of adolescent SRHR have substantially improved. Adolescent girls are more likely to delay first marriage, first sex, and first birth and are more likely to use contraceptives than 25 years ago. Both child marriage and FGM have declined, but these gains are variable between countries and, in some locations, are offset by population growth, leaving more girls affected.

In key areas, shortfalls and worsening outcomes are notable, particularly in STIs. Similarly, the small but significant rise in reproductive cancers warrants tracking, especially given the limited scale of cancer screening and treatment in the developing world today. The effect of adolescent overweight and obesity trends on sexual and reproductive health warrants much closer attention looking forward.

The pace of progress in South Asia and Africa is especially noteworthy, but the high initial levels of many poor SRHR outcomes in Africa at the time of the ICPD mean that even exceptional progress since 1994 leaves Africa, in particular, with much ground for improvement before all adolescents have access to good sexual and reproductive health and are aware of their reproductive rights.

The persistence of teenage pregnancy and childbirth among the poor in Latin American and the Caribbean warrants special concern, as development alone does not seem to be prompting change in these outcomes. The cultural and social causes of this merit closer study.

In recent years, menstrual health has emerged as an important yet neglected entry point to discuss puberty, gender, reproductive health, and sexuality issues with young women. Globally, knowledge and understanding of menstruation are highly variable and often low among adolescent girls [66]. Lack of understanding coincides with stigma around menstruation and a cultural perception of menstruation as dirty and taboo [66,67]. Ideally, comprehensive sexuality education will help to enhance understanding of menstruation and dispel such beliefs and practices, reducing stigma and giving girls greater freedom.

It is worth commenting on gaps and needs with regard to data on adolescent SRHR. In the 25 years since ICPD, program implementers, researchers, and policy-makers have greatly expanded the available public knowledge concerning adolescents, their needs and concerns, and how to help them overcome barriers to their sexual and reproductive health and well-being and to support them in fulfilling their aspirations.

New data on FGM and violence since the late 1990s have helped enormously to track and identify the scale of risk. Such trackings need to be systematically expanded in all countries not only through periodic surveys but also through better routine data collection in national registries. Disaggregation of data across different age groups (early and late adolescence and young adulthood) and marital status is not carried out consistently in many prominent datasets, which may hide important discrepancies. The continuing influence of social taboos on adolescent sexuality also affects the availability of data. This is not only reflected in the choice of indicators but may also influence the reliability of data because of underreporting of socially less accepted behaviors such as sexual activity or induced abortion. The scale of such underreporting is not easy to estimate.

Finally, although a significant amount of data are available, it is essential to look at the areas where data and evidence are

currently lacking. Keeping in mind the comprehensive ICPD definition of sexual and reproductive health, we note that the focus of past and current research is still largely on physical health outcomes, starting from a public health perspective and predominantly using a risk-reduction approach. Mental and social well-being, including body image, self-esteem, and equal romantic and sexual relationships, which are intrinsic parts of sexual and reproductive health, receive far less attention and are often measured only in small-scale cross-sectional studies, making it difficult to detect trends.

Extensive research during the HIV epidemic on the multiple covariates of sexual risk taking are now largely out-of-date, and we need to better understand the current interplay of life events, including how Internet connections augment or negate certain sexual and reproductive health risks and transitions to healthy adulthood. Although adolescence is, in general, a vulnerable period, characteristics of specific subgroups of adolescents intersect to heighten this vulnerability. In particular, adolescents of diverse sexual orientation and gender identity, adolescents in humanitarian contexts, and adolescents from child-headed households are underresearched groups, but emerging evidence suggests the importance of these circumstances for adolescent SRHR [68–71].

In sum, there has been much progress since ICPD, but there is much more to do to ensure that all adolescents have the right to make their own free and informed choices and to have control over their sexual and reproductive health and lives and free from coercion, violence, discrimination, and abuse. The accompanying papers in this special volume offer insights into priorities in programming and needed interventions to make these aspirations reality.

Supplementary Data

Supplementary data related to this article can be found at <http://doi.org/10.1016/j.jadohealth.2019.09.015>.

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