THE COST OF INACTION

The cost of not realizing the HIV and sexual and reproductive health and rights of young people in Kenya, Rwanda and Uganda

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ABBREVIATIONS

CSE	comprehensive sexuality education
DHS	Demographic and Health Survey
GDP	gross domestic product
HIV	human immunodeficiency virus
SDG	Sustainable Development Goal
SRHR	sexual and reproductive health and rights
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
WHO	World Health Organization

EXECUTIVE SUMMARY

INTRODUCTION

This study delves into the costs incurred by not investing adequately in sexual and reproductive health and rights (SRHR) services, including for HIV, for young people in Kenya, Rwanda and Uganda. It calculates the cost of inadequate SRHR service provision for people aged 15–24 years. By showcasing the current cost to society of not investing in these essential services, the study provides a basis upon which the cost-effectiveness of different interventions can be assessed as part of a cost-of-inaction approach. These findings inform actionable recommendations to reduce the costs of inaction and improve SRHR outcomes for young people.

METHODOLOGY

The study drew on the methodology developed for a cost-of-inaction study in South Africa and Zimbabwe *(1)*, but applied to Kenya, Rwanda and Uganda. In each country, three areas currently adversely affecting SRHR of young people are explored in depth—early pregnancy, HIV infection and gender-based violence. For each of these areas, the direct financial costs, individual user costs and opportunity costs are explored. Taken together, these costs make up the constitutive and consequential costs from adverse outcomes related to early pregnancy, HIV infection and gender-based violence.

Demographic and epidemiological data were sourced from reputable national and international sources. National sources include national statistical agencies and Demographic and Health Surveys. International sources include datasets from the Joint United Nations Programme on HIV/AIDS, the United Nations Children's Fund, the United Nations Educational, Scientific and Cultural Organization, the World Bank and the World Health Organization.

Costing data were drawn from peer-reviewed papers with data that were no more than 15 years old. Wherever possible, national costing data were used; where this was not possible, average regional data or a neighbouring country's data were used as a proxy. All costing data in local currency were converted to United States dollars (US$) at that year's average exchange rate and then converted to 2023 prices using the United States Consumer Price Index *(2)*. Sources and assumptions for the cost calculations are included for transparency.

RESULTS

The results are summarized in the table below. The minimum total annual cost of not investing adequately in SRHR and HIV services is US$ 1.2 billion in Kenya, US$ 197 million in Rwanda and US$ 438 million in Uganda. These costs are equivalent to 1.1% of the gross domestic product (GDP) in Kenya, 1.4% in Rwanda and 0.9% in Uganda. The biggest cost drivers are early pregnancy and gender-based violence in Kenya and Rwanda, and early pregnancy and HIV infection in Uganda.

DISCUSSION AND NEXT STEPS

Inaction in the provision of effective, youth-friendly SRHR and HIV services is placing a huge burden on young people in Kenya, Rwanda and Uganda, with lifelong consequences for individuals, families and communities. This report calculates the total cost and unit costs of adverse outcomes. The next step is to compare these costs with the costs and relative impacts of different policy options for supporting youth-friendly SRHR. Based on current best practice and evidence, it is likely that action needs to be taken across five interlinked areas:

Keeping girls in school

Breaking down the divide between the health and education sectors to improve the quality of comprehensive sexuality education programmes provided

Increasing access to youth-friendly SRHR services

Reducing gender-based violence

Preventing HIV infection

Developing, costing and choosing the suite of SRHR services to be provided needs to happen through a multisectoral and multistakeholder process within each country.

SUMMARY OF ANNUAL COSTS OF NOT INVESTING ADEQUATELY IN SRHR SERVICES FOR YOUNG PEOPLE

AREA	COST CATEGORY	COST (2023 US$) KENYA	RWANDA	UGANDA
EARLY PREGNANCY AMONG GIRLS AND WOMEN AGED 15–19 YEARS	Health costs—financial costs to health system due to early pregnancy	34 418 812	7 210 401	62 423 118
	Health costs—financial costs to women due to early pregnancy	11 946 342	2 026 379	12 842 465
	Economic costs—loss of lifetime earnings to adolescent mothers due to dropping out of school	836 102 761	165 489 658	140 522 482
	Economic costs—loss of lifetime earnings to adolescent fathers due to dropping out of school	Unable to quantify	Unable to quantify	Unable to quantify
Total cost of early pregnancy		**882 467 916**	**174 726 438**	**215 788 066**
HIV AMONG PEOPLE AGED 15–24 YEARS	*Young women living with HIV*			
	Lifetime costs to health system of HIV	35 605 360	4 125 542	93 493 627
	Lifetime costs to person living with HIV	6 083 054	764 723	15 973 066
	Cost of elimination of vertical transmission	292 289	10 981	323 545
	Lifetime HIV-related costs for children born living with HIV	2 189 615	81 898	3 824 969
	Lifetime onward transmission costs	20 538 214	2 613 945	53 929 861
	Young men living with HIV			
	Lifetime costs to health system of HIV	9 875 167	1 076 499	24 778 145
	Lifetime costs to person living with HIV	1 053 083	133 429	2 642 330
	Lifetime onward transmission costs	3 360 546	432 453	8 432 070
	Young women and young men living with HIV			
	Financial costs due to higher incidence of opportunistic infections and chronic comorbidities	Unable to quantify	Unable to quantify	Unable to quantify
	Economic costs of living with HIV	Unable to quantify	Unable to quantify	Unable to quantify
Total cost of HIV		**78 997 328**	**9 239 469**	**203 397 612**
GENDER-BASED VIOLENCE AMONG PEOPLE AGED 15–24 YEARS	Cost to survivors, including lost productivity	168 535 121	4 846 140	5 430 210
	Government costs	60 733 377	6 122 149	12 389 383
	Civil society and community costs	6 073 338	2 192 140	1 268 875
	Second-generation costs	Unable to quantify	Unable to quantify	Unable to quantify
	Costs to male perpetrators of violence	Unable to quantify	Unable to quantify	Unable to quantify
Total costs		**235 341 835**	**13 160 429**	**19 088 467**
Total combined cost of early pregnancy, HIV and gender-based violence		**1 196 807 079**	**197 126 336**	**438 274 145**

RESOURCES

1 The cost of inaction. Geneva: Joint United Nations Programme on HIV/AIDS; 2025 (https://www.unaids.org/sites/default/files/2025-06/JC3130E-cost-of-inaction-south-africa-zimbabwe_en.pdf, accessed 20 October 2025).

2 CPI inflation calculator. Washington, DC: Bureau of Labor Statistics; 2024 (https://www.in2013dollars.com/us/inflation/2012, accessed 20 October 2025).

1 INTRODUCTION

Harm can occur when something is done or when something is not done. Not providing food aid after a natural disaster, for example, could cause starvation. Neglecting to address critical issues can lead to significant long-term harm, especially concerning the sexual and reproductive health and rights (SRHR) of young people. This report sheds light on the consequences of failing to take essential actions and demonstrates the cost of neglecting specific actions that could safeguard and promote SRHR among young people.

Poor SRHR and HIV outcomes are particularly harmful for young people because the impacts of these adverse outcomes magnify over a lifetime. Adolescent pregnancy, for example, not only disrupts education but also contributes to lower lifetime income and increased health risks. Delayed HIV diagnosis and treatment exacerbate health inequalities and economic burdens over time. Improving SRHR outcomes, especially for young people, is therefore a means of enhancing human development *(1)*.

Economic evaluations of a policy or programmatic intervention typically focus on the cost of undertaking the action and the direct or constitutive benefits. For a health-care intervention, the constitutive benefit is improved health. The cost-of-inaction approach goes beyond this and includes consequential benefits—the indirect benefits that arrive as a consequence of the action, or the negative consequences the action avoids *(2)*.

For a health-care intervention, the consequence of not undertaking an intervention could be continued ill health, which leads to adults being unable to work, reducing their income, and leading to other negative outcomes related to unemployment and poverty. Although many costs can be compared monetarily, costs such as pain, suffering and emotional distress cannot—these costs should not be ignored and should be listed where possible.

The cost-of-inaction approach challenges the notion that doing nothing has no costs or benefits and emphasizes the importance of considering the cost of maintaining the status quo versus taking proactive measures. It should be noted that not all negative outcomes can be attributed to inaction; only those that are preventable by specific actions qualify as consequences of inaction *(2)*.

The Joint United Nations Programme on HIV/AIDS (UNAIDS) has increasingly highlighted the relevance of the cost of inaction as an indicator of the negative impact on the lives of people and communities of not investing to end AIDS as a public health threat *(1)*. Despite commitments and endorsements from policy-makers *(3)*, access to comprehensive SRHR education and services remains inadequate for many young people in eastern and southern Africa, leading to immediate individual and social costs such as high rates of early pregnancy and dropping out of school, and long-term health and economic burdens.

This study delves into the costs incurred by not investing adequately in SRHR and HIV services for young people in Kenya, Rwanda and Uganda. It calculates the current cost of inadequate SRHR service provision for people aged 15–24 years. By showcasing the current cost to society of not investing in these essential services, and providing unit costs for early pregnancy, HIV infection and gender-based violence averted, the study provides a basis upon which the cost-effectiveness of different interventions can be assessed as part of a cost-of-inaction approach. These findings will inform actionable recommendations to reduce the cost of inaction and improve SRHR outcomes for young people.

WHAT DOES THIS STUDY TELL US?

The costs in this study are the costs of keeping the status quo on SRHR, HIV and gender-based violence for young people. It considers the direct financial costs, individual user costs and opportunity costs of policy gaps. For young people, these costs are high because current gaps in policies and programmes lead to adverse outcomes such as early pregnancy, which are magnified across a lifetime.

For example, a lack of effective comprehensive sexuality education (CSE) and access to youth-friendly contraception services leads to high rates of early pregnancy. Early pregnancy has a cost to the health system, in terms of the pregnancy itself; a cost to the adolescent mother, in terms of an increased chance of dropping out of school and an impact on income across the lifetime; a cost to the adolescent father, in terms of poorer schooling outcomes; a cost to the child, who is likely to perform poorly on a range of outcomes; and costs to the communities and countries of these young people.

The costs presented in this study are provided as unit costs per person so they can be used to compare alternative policy choices. The cost of inaction is not the cost of doing nothing—it is the cost of not taking action on a particular policy or programme change *(2)*.

To use these study findings to calculate the cost of inaction, two additional steps must be taken: ascertaining the impact of the policy or programme, and calculating the cost of achieving this change. This cost can then be compared with the cost of taking no action.

Using the example of increasing access to CSE and youth-friendly contraception services, the impact of this intervention on early pregnancy, HIV and gender-based violence can be ascertained through a pilot study. No intervention can reduce the incidence of early pregnancy, HIV or gender-based violence to zero, but the right intervention can greatly reduce their impact. The savings the programme brings in terms of reductions in the incidence of early pregnancy, HIV infection and gender-based violence can be compared with the cost of running the programme.

The cost-of-inaction approach can be used to make better policy decisions because the true cost of current interventions—or a lack of such interventions—can be estimated. There will be a different cost of inaction, depending on the specific intervention chosen to address SRHR for young people.

The cost of inaction is not necessarily where money can be "saved" by the government. In some areas, governments are incurring costs that can be reduced—for example, reducing the number of early pregnancies can lower health-service costs. Other costs, such as travel to health facilities, may be borne by individuals who are often among the poorest and most vulnerable people in society and least able to afford such costs. Reducing these costs would improve quality of life due to an increased ability to spend money on other things. Many of the costs are opportunities forgone, such as lower projected lifetime earnings due to dropping out of school. These hidden costs can lead to individuals, communities and countries being worse off due to lower monthly incomes, less money available to spend each month, and lower national growth.

2 METHODOLOGY

To calculate the cost of inaction due to inadequate provision of SRHR and HIV services to young people in Kenya, Rwanda and Uganda, the following methodology was used.

CHOICE OF COSTS

Economic evaluations usually focus on the constitutive costs and benefits of undertaking an action—in other words, the direct costs and benefits that accrue from undertaking an action *(2)*. For a health-care intervention, the constitutive benefit is improved health. The cost-of-inaction approach includes the negative consequences prevented by the action or the positive externalities generated by the action. These costs and benefits follow a societal approach and can be borne by different individuals and institutions at different points in time *(1)*.

Costs that fall on one agent can lead to secondary costs borne by other agents. For example, if a health-care intervention among children is not implemented, the continued ill health of children could lead to them dropping out of school and lower educational attainment. This in turn can lead to increased unemployment, higher levels of crime, higher poverty levels and other negative outcomes *(2)*. This shows that the cost of inaction can be borne over a long period of time and can be seen beyond the people initially affected, including intergenerationally.

Many costs can be quantified relatively easily in monetary terms, including budgetary and out-of-pocket expenditure. Some costs can be quantified but are not easily monetized, including illness, death and societal costs such as an increase in crime. Costs that cannot be quantified reliably in monetary terms—such as pain, suffering and emotional distress—should be listed, to allow policy-makers to see the non-monetary consequences of different actions *(2)*.

The following costs are included in this study:

- Financial costs: monetary expenditure to create a product or provide a service, such as the cost of purchasing antiretroviral medicines or the cost to the health system of a health professional administering those medicines.
- Individual user costs: costs to the individual or their family to access services, such as out-of-pocket expenses incurred due to travelling to a health facility to pick up antiretroviral medicines.
- Opportunity costs: benefits forgone by an individual, family, community or society, such as an individual's potential earnings lost due to dropping out of school or lower labour productivity.

The costs considered in this study—early pregnancy, HIV infection and gender-based violence—highlight the cost of inadequate provision of SRHR and HIV services to people aged 15–24 years.

Early pregnancy is pregnancy in an adolescent girl or young woman aged under 20 years. This study focuses on the age group 15–19 years due to the availability of more reliable data compared with the age group 10–14 years *(4)*. The majority of early pregnancies at this age are unintended *(4)*. The percentage of adolescent girls and young women aged 15–19 years who have been pregnant is 5% in Rwanda, 18% in Kenya and 25% in Uganda, according to Demographic and Health Survey (DHS) data *(5)*. Early pregnancy is driven by multiple factors, including poverty, lack of information, lack of access to SRHR services, cultural norms, peer pressure, and sexual coercion and abuse.

Negative pregnancy-related issues that particularly affect people in this age group are low birth weight and eclampsia, increasing the risk of maternal or neonatal mortality. Other pregnancy-related issues include lower educational attainment due to young mothers and young fathers dropping out of school *(5)*. All these factors show a wider cost of inaction beyond a traditional financial approach.

Eastern and southern Africa is home to 60% of all people aged 10–19 years living with HIV globally—an estimated 1.74 million people. Although numbers of new HIV infections among young people have fallen by 46% over the past 10 years, this is still far off target. Adolescent girls and young women aged 15–24 years are at particular risk of HIV infections and represented 26% of all new infections in the region in 2020. Tens of thousands of young men aged 15–24 years are living with HIV in each country. AIDS is the leading cause of adolescent mortality in 12 eastern and southern African countries *(6–8)*.

Rates of gender-based violence among women and girls in eastern and southern Africa are high. In seven countries, approximately one in five young women aged 15–24 years has experienced sexual violence from an intimate partner. Gender-based violence has serious consequences for physical, sexual, reproductive and mental health among young women. Intimate partner violence and the fear of abuse prevent girls and women from refusing sex and jeopardize their ability to negotiate condom use, increasing the risk of unintended pregnancy and HIV infection. Gender-based violence is a fundamental violation of women's human rights and has adverse economic and social consequences for women, men, children, families and communities *(9)*.

Other SRHR costs such as sexually transmitted infections or contraceptive use could have been chosen, but this study focuses on the three areas described above because data on incidence and costs are most likely to be available, and there are clear consequences when there is a lack of SRHR services.

COUNTRY SELECTION

Three countries from eastern Africa were chosen for the study—Kenya, Rwanda and Uganda. These countries were chosen to complement the previous study undertaken in the southern African countries of South Africa and Zimbabwe *(1)*. The three countries have sufficient data available, and there are demographic and policy similarities and differences between them that provide depth to the analysis and discussion (Table 1).

The three countries have relatively large youth populations and suboptimal outcomes for SRHR and HIV in this age group. Globally, 15.5% of the population is aged 15–24 years, but 20–22% of the population is aged 15–24 years in the three study countries.

The adolescent birth rate is 42.4 births per 1000 women aged 15–19 years globally, but 108 births in Uganda and 64.2 births in Kenya. The adolescent birth rate in Rwanda is lower than the global average but still higher than in 84 other World Health Organization (WHO) Member States *(10)*.

HIV prevalence in the three countries among people aged 15–24 years is higher than the global average of 0.3% *(11)*. Kenya and Uganda have generalized epidemics among women and men.

The prevalence of gender-based violence is higher in Kenya and Uganda than the Sustainable Development Goal (SDG) 5.2.1 dataset average of 17.3% *(12)*.

TABLE 1. DEMOGRAPHIC AND POLICY BACKGROUNDS OF KENYA, RWANDA AND UGANDA

INDICATOR	KENYA	RWANDA	UGANDA
Population	53.0 million	13.5 million	45.9 million
Life expectancy at birth			
Female	64.1 years	68.2 years	64.9 years
Male	58.9 years	63.8 years	60.4 years
Percentage of population aged 15–24 years	20.8%	20.3%	22.1%
Gross national income per capital (current US$)	US$ 2170	US$ 930	US$ 930
Fertility rate (births per woman)	3.3	3.8	4.6
Adolescent birth rate (births per 1000 women aged 15–19 years)	64.2	32.4	107.9
Median age at first sex among young people			
Female	18.7 years	21.0 years	17.6 years
Male	17.8 years	21.5 years	18 years
Percentage of people aged 15–19 years who had multiple partners and used a condom at last sex			
Female	25.0%	52.0%	51.9%
Male	64.2%	66.7%	56.0%
HIV prevalence among people aged 15–24 years			
Female	1.7%	0.9%	2.5%
Male	1.1%	0.6%	1.0%
Percentage of women aged 15–24 years who have ever experienced physical or sexual violence	28.4%	35.6%	49.3%
Extent to which laws and regulations guarantee access to SRHR services and education (Sustainable Development Goal 5.6.2)			
Maternity care	81%	75%	No data
Family planning	7%	75%	No data
CSE	0%	100%	No data
Sexual health	70%	90%	No data
Total	48%	82%	No data
Legal age for consent to sexual intercourse	18 years	18 years	18 years
Laws requiring parental consent for adolescents to access SRHR services	No	No	No
Laws and policies requiring provision of CSE in primary school	Yes	Yes	Yes
Percentage of primary schools fully implementing national CSE policy	51–75%	No data	26–50%
Percentage of secondary schools fully implementing national CSE policy	51–75%	No data	51–75%

Sources: WHO Sexual and Reproductive Health and Rights data portal (https://www.srhrdashboard.org/), latest DHS for each country (https://www.statcompiler.com/en/), World Bank World Development Indicators (https://databank.worldbank.org/source/world-development-indicators), UNAIDS estimates (https://aidsinfo.unaids.org/).

The three countries have a similar age of sexual debut (approximately 18 years). The three countries had a similar proportion of men aged 15–19 years with multiple partners using a condom at last sex, but the number of women aged 15–19 years with multiple partners using a condom at last sex was lower, especially in Kenya *(11)*.

Policy environments across the three counties are similar. All three countries have laws and policies that allow access to CSE at primary school, age of consent for sex of 18 years, and no requirement for parental consent for people aged under 18 years to access SRHR services *(13, 14)*.

The main differences between the countries are in population size and income per capita. Kenya and Uganda are much larger countries and have populations more than five times that of Rwanda. Kenya has an income per capita of US$ 2170, classifying it as a lower-middle-income economy. Rwanda and Uganda both have an income per capita of US$ 930, classifying them as low-income economies *(15, 16)*.

Compared with Kenya and Rwanda, Uganda has a much higher adolescent birth rate, a higher prevalence of HIV among people aged 15–24 years, and a higher rate of gender-based violence *(11)*. Rwanda scores better than Kenya on SDG 5.6.2, which assesses the extent to which laws and regulations guarantee access to SRHR services and education. Kenya scores particularly poorly on CSE and family planning, which is interesting given a legal provision for CSE education in primary schools *(12)*. Data for this indicator are not available for Uganda.

SOURCES OF DATA

Demographic and epidemiological data were sourced from reputable national and international sources. National sources include national statistical agencies and DHS reports. International sources include datasets from UNAIDS, the United Nations Children's Fund (UNICEF), the United Nations Educational, Scientific and Cultural Organization (UNESCO), WHO and the World Bank. The latest data were used.

Costing data were drawn from peer-reviewed papers and trusted in-country sources provided by 2gether 4 SRHR partners, with the process led by UNAIDS country offices. Wherever possible, national costing data were used; where these were not available, average regional data for eastern African or sub-Saharan Africa were used based on relative country income level. This was not ideal, given the natural costing variation between countries, but it allowed a reasonable estimate to be included in the broader calculations.

Costing data from before 2009 were excluded because they were deemed too old for inclusion. All costing data were converted to 2023 United States dollar (US$) prices using the United States Consumer Price Index *(17)*. Base-year costs in local currency were converted to United States dollars using the average exchange rate for that year and then adjusted to 2023 United States dollars.

The draft version of the report was reviewed and validated by the UNAIDS country offices, seeking support as required from agency partners and national governments.

ASSUMPTIONS

As with all costing studies, several assumptions were made and must be considered when interpreting the study findings.

The cost calculated is cost per year, but the costs result from adverse events happening during the year rather than costs that will be borne that year. For example, for early pregnancy, the cost of pregnancies and births that year for adolescent girls aged 15–19 years are calculated—but the consequential costs, such as dropping out of school leading to a loss of lifetime earnings, will materialize over the next few decades.

The time horizons used during the study are the expected durations in which costs will be incurred. For lifetime lost earnings, a working life of 40 years is assumed. For HIV-related costs, the average life expectancy for a person aged 20 years living with HIV is used.

The discount rate used for future earnings is 5%. This is comparable to similar studies on loss of lifetime earnings among young people due to educational disruption *(18)*.

Not all costing and demographic data were available. In some cases, assumptions were made and proxies used instead. The assumptions and proxy costs and figures are explained in the next section.

Where it was difficult to generate a reliable cost estimate due to a lack of data or suitable proxy, the costs were excluded from the analysis—for example, the additional costs to the health system and the individual due to the increased incidence of noncommunicable diseases among people living with HIV. Disability-adjusted life-years and years of life lost are not included in the study. This means the costs displayed are a minimum, and the true costs may be higher. Table 2 summarizes the costs included and not included in the study.

The cost is not necessarily whether money can be "saved" by the government. In some areas, governments are incurring costs that can be reduced—for example, reducing the number of early pregnancies can lower health-service costs. Other costs, such as travel to health facilities, may be borne by individuals who are often among the poorest and most vulnerable people in society and least able to afford these costs. Reducing these costs would improve quality of life due to an increased ability to spend money on other things. Many of the costs are opportunities forgone, such as lower projected lifetime earnings due to dropping out of school. These hidden costs lead to individuals, communities and countries being worse off due to lower monthly incomes, less money available to spend each month, and lower national growth.

This study looks at the cost of poor SRHR outcomes for young people. It does not compare against possible policy or programmatic responses. The study is therefore only the first step of a cost-of-inaction study and should be compared with a policy or programmatic alternative. The figures per person and per adverse event in this study can be used to compare different policy and programmatic responses to improve SRHR among young people by reducing the incidence of early pregnancy, HIV infection and gender-based violence.

TABLE 2. COSTS INCLUDED AND NOT INCLUDED IN THIS STUDY

KEY AREA	COSTS INCLUDED	COSTS NOT INCLUDED
EARLY PREGNANCY AMONG PEOPLE AGED 15–19 YEARS	Financial cost to health system Cost to individuals Opportunity costs—loss of lifetime earnings for adolescent girls and boys dropping out of school due to early pregnancy or early fatherhood	Second-generation costs, especially poorer outcomes among children of teenage mothers Monetary costs of increased maternal mortality due to unintended pregnancy
HIV AMONG PEOPLE AGED 15–24 YEARS	*For young women living with HIV:* Lifetime cost of HIV to health system Lifetime cost of HIV to individuals Cost of elimination of vertical transmission Lifetime HIV-related costs for children born living with HIV Costs associated with onward transmission of HIV from young people newly infected with HIV *For young men living with HIV:* Lifetime cost of HIV to health system Lifetime cost of HIV to individuals Costs associated with onward transmission of HIV from young people newly infected with HIV	Financial costs to the health-care system and individuals due to higher incidence of opportunistic infections and chronic comorbidities Loss of earnings for individuals and their families due to poor health, lower productivity at work and premature death Monetary cost of increased disability-adjusted life-years
GENDER-BASED VIOLENCE AMONG PEOPLE AGED 15–24 YEARS	Cost to survivors Cost to government Cost to civil society Cost to business	Second-generation costs of gender-based violence, including for affected family members, especially children Costs associated with male perpetrators of violence, such as cost to criminal justice system, and personal cost of loss of income

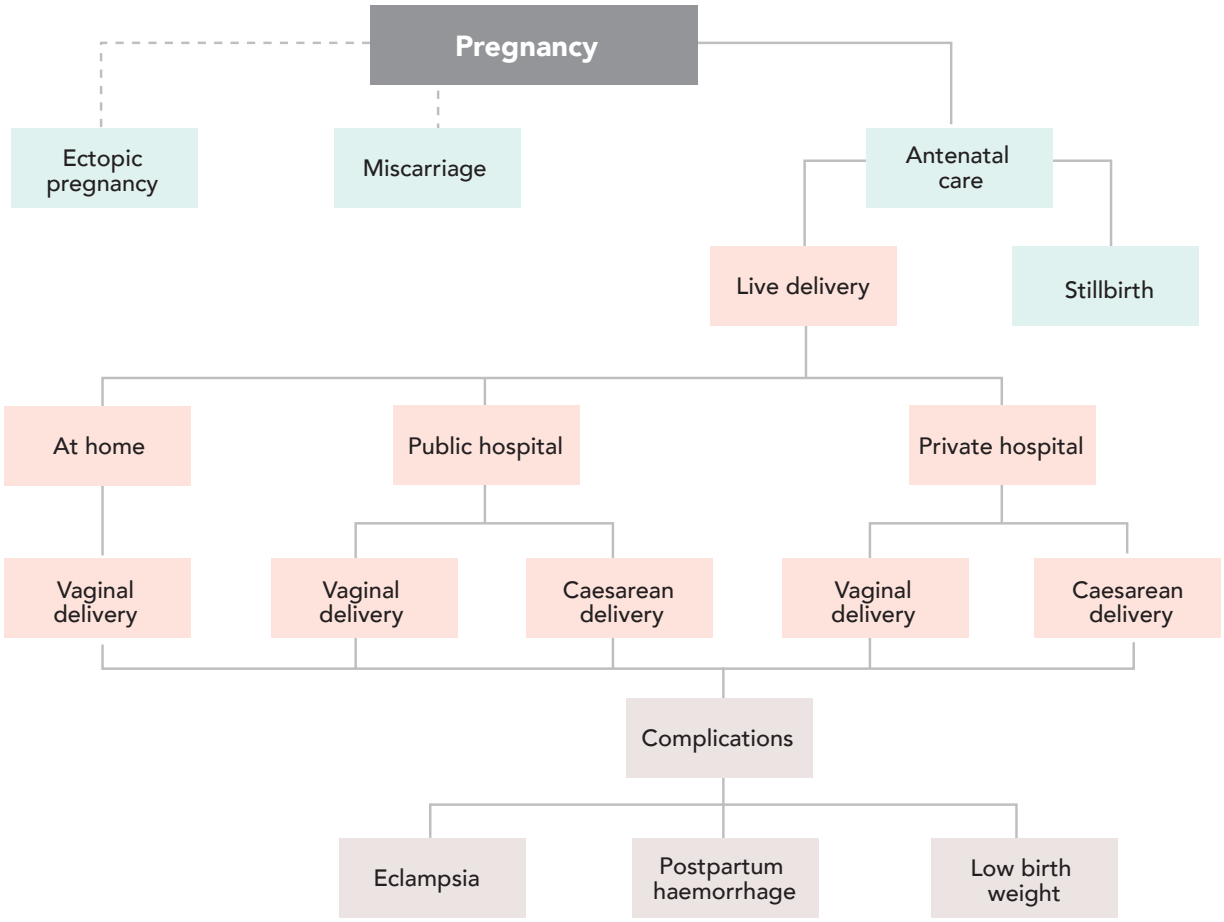
3 COST OF EARLY PREGNANCY

There are two ways to consider the total costs of pregnancy and childbirth among an age group. The first method is to take the total cost to the health system and the individual costs of all pregnancies, calculate the proportion of people aged 15–19 years among the population, and take the relevant proportion of the total cost.

The second method is to consider the unit costs for all interactions throughout pregnancy and childbirth, calculate the proportion of pregnancies this is relevant for, and calculate the cost per pregnancy. This can then be multiplied by the number of early pregnancies among people aged 15–19 years to calculate the total cost. This model is used for this study because the total cost of pregnancy and childbirth was not available and the unit cost model allows a much better insight into the main drivers of the total cost.

To work out the cost per pregnancy, the different outcomes for pregnancy and the interactions with the health system were mapped (Figure 1). Each pregnancy could be ectopic or could end in miscarriage, stillbirth or live delivery. Deliveries occur in different places, including at home and in public and private hospitals. Deliveries can be vaginal or caesarean. A proportion of deliveries are associated with complications that can lead to maternal mortality (e.g. eclampsia, postpartum haemorrhage) or neonatal mortality (e.g. low birth weight).

FIGURE 1. DIFFERENT PREGNANCY OUTCOMES



In Figure 1, each box represents an interaction with the health system with an attached cost. The lines between each box are the probability of occurrence (i.e. proportion) of each interaction—for example, a delivery in a hospital may be either vaginal or caesarean. Each interaction has a different cost, and the probability of each interaction occurring is known. To calculate the cost per pregnancy, the costs and the probabilities were calculated for every variable in each country. Unit costs were sourced and calculated. Based on the probability of each outcome occurring, a weighted average per pregnancy was calculated.

PREGNANCY OUTCOMES

In low- and middle-income countries, there are an estimated 228 million pregnancies each year, of which 127 million end in live births. Of the 101 million pregnancies that do not end in live birth, it is estimated that 30 million end in miscarriage and 3 million end in stillbirth *(19)*. Focusing only on live births misses a large proportion of the cost of pregnancy and ignores the health-care needs of millions of women.

Ectopic pregnancy

Ectopic pregnancy is a complication of pregnancy characterized by abnormal implantation of the fertilized ovum in tissue other than the endometrial lining of the uterus, usually the fallopian tube. Ectopic pregnancy is a life-threatening obstetric condition if undiagnosed. Rupture during the first trimester of pregnancy is a leading cause of maternal death. The incidence of ectopic pregnancy in Africa is 1.1–2.7% and has risen in many African countries over the past few years. The incidence between 1993 and 1995 was 11 cases per 1000 live births, but this doubled to 22 cases per 1000 live births between 2010 and 2014. The incidence of ectopic pregnancy could not be found for Kenya, Rwanda or Uganda, and therefore the global average of 2% of all pregnancies has been used in the calculations *(21, 22)*.

Health-care costs for ectopic pregnancy in Uganda were US$ 101 *(23)*. This is similar to the cost of a caesarean delivery in a public hospital, which was estimated in the same study to be US$ 97. No specific costs for ectopic pregnancy could be found for Kenya or Rwanda, and therefore the public hospital costs of caesarean delivery were used as a proxy.

Individual costs for ectopic pregnancy were available for Kenya *(24)* but not for Rwanda or Uganda. It was assumed that the individual costs were the same as for caesarean delivery.

Miscarriage

A miscarriage is the spontaneous loss of a pregnancy before 20 weeks gestation. It is estimated to occur in 13% of pregnancies in low- and middle-income countries *(19)*. Eight of 10 miscarriages occur within the first trimester *(25)*. Many miscarriages need no medical treatment, but some require surgery to remove tissue remaining in the uterus or medical treatments *(26)*. In Kenya and Uganda, 14.5% and 19% of women with miscarriage needed medical treatment, respectively. No data were available from Rwanda, and therefore the lower of the two percentages was used as a proxy.

Antenatal care

Antenatal care with a qualified health provider is essential to protect the health of women and their unborn children. Until 2016, WHO recommended a minimum of four antenatal care visits, but this was increased to a minimum of eight visits in 2016 *(27)*.

For the purposes of this study, we assumed that women whose pregnancies ended in miscarriage or who had an ectopic pregnancy did not receive antenatal care. Most miscarriages and ectopic pregnancies occur in the first trimester. If an antenatal care visit picked up an ectopic pregnancy, the cost would be included as part of costing for an ectopic pregnancy. Therefore, costs for antenatal care are included only for pregnancies that lead to live births or stillbirths. Births occur in 66% of pregnancies in Kenya, 75% in Rwanda and 70% in Uganda. The stillbirth rate is 18.53 per 1000 total births in Kenya, 16.75 in Rwanda and 15.1 in Uganda *(28)*. It is assumed that the average number of antenatal care appointments and health-system and individual costs are the same, regardless of whether the outcome is a live birth or stillbirth.

The health-system cost per antenatal care visit is calculated from a 2015 study for which there were an average of 3.6 visits per woman *(29)*. This was adjusted to reflect an increase in the average number of visits to 4.15 visits per person *(30)*.

In Kenya, user fees to access maternity services in public health facilities were abolished in 2013 and for private health facilities in 2017 *(31)*. This did not remove all individual costs of attending maternity services, however, because individuals still face out-of-pocket expenses such as travel and loss of earnings when accessing antenatal care services. Out-of-pocket payments were calculated for delivery services but not for antenatal care *(32)*. As a proxy, the figures from a Rwandan 2018 study were used where the primary out-of-pocket expenses were transport *(33)*.

For Rwanda, using data from the 2019–2020 DHS, adolescents had an average of 3.63 antenatal care visits *(34)*. Public health-system costs were provided in a 2018 study for an average of four visits *(33)*. The total costs were reduced proportionally and then converted to 2023 prices. The same study provided out-of-pocket costs for four antenatal care visits, which were reduced proportionally to the adolescent average of 3.63 visits and converted to 2023 prices.

In Uganda, the average number of antenatal care visits was 4.12 *(35)*. No health-system or individual costs could be sourced for antenatal care, but individual fees are not payable for antenatal care services *(36)*, which is the same as for Kenya and Rwanda. Therefore, the Rwanda health-system and out-of-pocket patient figures were used as a proxy, adjusted to the average number of visits and to 2023 prices *(33)*.

DELIVERY

Costs for delivery depend on the location and the modality of the delivery. Three locations are used in this study—home, public health facilities and private health facilities. Two modalities are used—vaginal and caesarean delivery.

For Kenya, Rwanda and Uganda, the delivery location probabilities were taken from the latest country DHS reports (2022 for Kenya, 2020 for Rwanda, 2016 for Uganda) *(34, 35, 37)*. The proportions of caesarean and vaginal deliveries in both public and private facilities were taken from the DHS reports, which are split per facility rather than per age group. As per the DHS methodology, it is assumed that all home deliveries are

vaginal. In Kenya, 17% of adolescent deliveries were in private health facilities, compared with 14.3% in Uganda and 0.9% in Rwanda.

For Kenya, the health-care costs for vaginal and caesarean deliveries in a public hospital were taken from a previous study *(29)*. The proportion of deliveries among people aged under 20 years that took place in a health facility was 88%, and 88.1% of all deliveries were attended by a skilled provider such as a doctor, nurse, midwife or clinical officer. The remainder were attended by traditional birth attendants (7.3%) or relatives or friends (4.1%), or were unattended (0.5%). It is assumed there is no cost to the health system for these home deliveries.

Individual costs for delivery in a health facility were taken from another study, with vaginal delivery being the mean out-of-pocket costs for a person aged under 24 years and the caesarean delivery costs being the overall mean in the study, because these costs are not broken down by age *(32)*. The individual cost of a home delivery is unknown and therefore not included.

In Rwanda, the costs of a vaginal delivery were taken from a 2018 study *(38)* and the costs of a caesarean delivery from a 2019 study *(39)*. According to the 2020 DHS, 97.5% of deliveries among people aged under 20 years take place in a health facility, and 97.7% of all deliveries are supported by a skilled provider *(34)*.

It is assumed that home deliveries have no cost to the health system. The individual costs of a vaginal delivery are calculated in the 2018 study *(38)*. The individual costs of a caesarean delivery are calculated in a 2022 study that includes the full costs, including follow-up for up to 30 days *(40)*.

For Uganda, the delivery costs for public health facilities are listed in a systematic review of costing studies *(20, 23, 41)*. According to the 2016 DHS, 78.6% of deliveries among people aged under 20 years took place in a health facility, and 78.3% of all deliveries are supported by a skilled health provider *(35)*. It is assumed that home deliveries have no cost to the health system. Individual costs for vaginal and caesarean deliveries were estimated *(36)*.

For all three countries, the cost for delivery in a private hospital could not be found. In South Africa, it costs 268% more to deliver a baby in a private hospital than in a public hospital *(42, 43)*. The same differential was used for Kenya, Rwanda and Uganda as a proxy, with public health facility vaginal and caesarean delivery costs multiplied by 2.68 to estimate private facility costs.

For all three countries, it is assumed that delivery of a stillbirth costs approximately the same as delivery of a live birth, with no additional costs. Thus, costs are calculated for all deliveries, regardless of whether the outcome is a live birth or stillbirth.

COMPLICATIONS

Eclampsia

Hypertensive disorders of pregnancy cause 14% of all maternal deaths globally—approximately 42 000 each year *(44)*. Most cases are associated with pre-eclampsia and eclampsia. The prevalence of pre-eclampsia and eclampsia globally is 4.6% and 0.3%, respectively *(44)*. There is wide variation across regions, however, with incidence of eclampsia of 1.6% in South Africa, 0.57% in Zimbabwe *(45)* and 1% in Rwanda *(38)*. Incidence of eclampsia could not be found for Kenya and Uganda, and therefore the Rwanda figure was used as a proxy. Women aged under 20 years, women with lower education levels and women in their first pregnancy are all reported to be at higher risk *(45)*. This highlights a triple risk factor for adolescent girls who become pregnant, with nearly a third of cases of eclampsia occurring in women aged under 20 years *(44)*.

Postpartum haemorrhage

Postpartum haemorrhage is blood loss of more than 500 mL in the 24 hours following delivery. Severe postpartum haemorrhage is blood loss of more than 1000 mL in the same time period. Globally, 6% of deliveries result in postpartum haemorrhage, and it is severe after 1.86% of deliveries *(46)*. In Rwanda, postpartum haemorrhage is severe after 2.7% of deliveries *(38)*. No figures could be found for Kenya and Uganda, and therefore the Rwanda figure is used as a proxy.

Low birth weight

The weight of the baby at birth is a major determinant of infant and child mortality. Babies who weigh less than 2.5 kg at birth have a higher than average risk of early childhood death. According to UNICEF estimates for 2020, 10% of babies in Kenya and 9.4% in Rwanda had a low birth weight. No data were available for Uganda, and therefore the Kenya figure was used as a proxy *(47)*.

Total cost of pregnancy complications

The costs for low birth weight were sourced from a systematic review across sub-Saharan Africa *(20)*. Costs were categorized as health-system costs if they were borne by the health-care facility and as individual costs if they were borne by the woman or caregiver. Individual direct costs included costs to access care, such as out-of-pocket payments for treatment, transport to and from the health-care facility, food and other related expenses. Individual indirect costs included costs resulting from the loss of income due to not being able to engage in economically productive activities due to illness. Median costs were used because a locally sourced cost was not available for any of the three countries.

For Kenya and Uganda, the health-system costs of eclampsia and postpartum haemorrhage were estimated from a systematic review *(20)*. For Uganda, this same study is the source of individual costs. For Kenya, individual costs are calculated from a costing study *(24)*. For Rwanda, health-system and individual costs for eclampsia and postpartum haemorrhage are taken from another study *(38)*.

NUMBER OF EARLY PREGNANCIES AMONG GIRLS AGED 15–19 YEARS

The number of live deliveries for girls aged 15–19 years was calculated by using the adolescent birth rate per 1000 women *(48)* and dividing by the total current estimated population of adolescent girls and young women aged 15–19 years *(49)*. The number of pregnancies per year was calculated using the ratios explained above.

OPPORTUNITY COSTS OF EARLY PREGNANCY AMONG GIRLS AGED 15–19 YEARS

In addition to additional health costs and potential negative complications due to early pregnancy, there is a high opportunity cost to the individual and to society. This is driven mainly by the greater likelihood that a girl will drop out of school due to pregnancy. In Kenya and Rwanda, an estimated 13 000 girls drop out of school each year due to early pregnancy *(50, 51)*. In Uganda, 8116 girls dropped out of school in 2016 due to pregnancy, accounting for 34% of all school dropouts *(52)*. The assumption is that girls drop out only if they have a child who survives but not, for example, if there is a miscarriage in the first or second trimester.

The main opportunity cost of dropping out of school is lower lifetime earnings due to a lack of a higher level of education. There is also an increased likelihood of unemployment throughout working life *(18)*. Girls who experience early pregnancy have an increased risk of gender-based violence and living in poverty, with the associated negative health and social consequences *(53)*. The methodology for calculating forgone lifetime earnings due to dropping out of school is described below. This is the only opportunity cost of early pregnancy calculated for this study, but several other potential opportunity costs also exist.

From a societal perspective, lower lifetime earnings and higher levels of unemployment reduce potential tax revenue for the government and lead to lower productivity. This translates into lower output and reduces potential gross domestic product (GDP) due to a smaller skilled workforce. A 2008 study in Latin America found that a high secondary school dropout rate of 70% would reduce GDP growth by 1.7% a year; over a timeframe of 35 years, this is the equivalent of 58% of annual GDP *(18)*.

Other knock-on effects of early school dropout for individuals and society are an increase in unemployment, violent crime (including gender-based violence) and risky sexual behaviour—leading to further early pregnancies and an increased chance of HIV infection *(1, 17, 47)*. The costs associated with youth unemployment, crime and incarceration are not included in this study. These costs are of lower magnitude than the costs covered in this study because they have a limited timeframe, whereas dropping out of school early has a lifelong impact *(18)*.

Children of adolescent mothers are more likely to have low birth weight, have poorer health, experience physical abuse, struggle academically and die prematurely *(1, 17)*. These knock-on effects are included in this study, but additional costs are not.

Early pregnancy has a consequence for boys becoming adolescent fathers. A South African study found that only one in 10 young fathers remain in school because of the social pressure to provide financially for their

children *(54)*. In Kenya, Rwanda and Uganda, no data on the number of adolescent boys who drop out of school due to becoming fathers could be found, and therefore this figure was not included in the study.

The cost of the effect of early pregnancy on future generations is not included due to a lack of reliable data. For example, the children of adolescent mothers are at greater risk of experiencing teenage pregnancy themselves, perpetuating intergenerational cycles of poverty *(55)*.

CALCULATING FORGONE LIFETIME EARNINGS DUE TO DROPPING OUT OF SCHOOL

The opportunity cost of early pregnancy is the forgone lifetime earnings associated with the completion of a higher schooling level. A gross income is used to capture societal and individual impacts—that is, forgone taxation receipts are included.

To calculate the lifetime cost of dropping out of school, discounted to the present day, it is important to compare the difference in average annual earnings for an individual who did not complete secondary school with an individual who did complete secondary school across their working lifetimes. This can be displayed mathematically:

Equation 1

$$\sum_{t=1}^{T}\left[\frac{w^{ss}-w^{drop}}{(1+r)^{t}}\right]$$

This demonstrates the net present value of the difference between the average earnings of a person who graduates from secondary school (w^{ss}) and a person who drops out of secondary school (w^{drop}), where r is the discount factor and T is the expected working lifetime. The discount rate is set to 5%, with a 45-year working life *(18)*.

This is not the full picture, however. A proportion of secondary school graduates go on to complete a diploma or technical college qualification, and another proportion go on to complete a degree. Earnings are higher for each group compared with secondary school graduates. For diploma and college graduates, this is displayed as follows:

Equation 2

$$\Pr(\text{Dip/SS})\times\sum_{t=1}^{T}\left[\frac{w^{dip}-w^{ss}}{(1+r)^{t}}\right]$$

Equation 2 calculates the difference in average earnings for a diploma graduate (w^{dip}) and a secondary school graduate (w^{ss}), weighted by the probability that a secondary school graduate will attend college for a diploma. This is estimated using the fraction of secondary school graduates who attend college:

Equation 3

$$\Pr(\text{Deg/SS}) \times \sum_{t=1}^{T} \left[\frac{w^{deg} - w^{ss}}{(1+r)^t} \right]$$

Equation 3 does the same thing, except it compares the average earnings for a university graduate (w^{deg}) and a secondary school graduate (w^{ss}), weighted by the probability that a secondary school graduate will attend university to get a degree. The source data look at the probability of a student receiving a diploma or degree, and so these are compared directly with secondary school graduates. Some will have obtained both a diploma and a degree, but it is the final qualification that is being measured. To calculate the total cost of dropping out of secondary school, the three numbers generated are summed together.

Assuming wage differences remain constant throughout an individual's lifetime *(18)* and retirement age is 60 years, people leaving education at or before the end of lower secondary school leave at age 16 years and have 44 years of earnings, secondary school leavers complete education at age 18 years and have 42 years of earnings, and degree graduates complete education at age 21 years and have 39 years of earnings.

For these calculations, earnings data for Rwanda and Uganda are from the latest available national labour force survey in each country, which included a measure of average monthly cash income from employment at main job by educational attainment *(56, 57)*. Data were provided in local currency and were converted to United States dollars at the average annual exchange rate *(58, 59)*, and then adjusted to 2023 United States dollars using the relevant United States Consumer Price Index adjustment *(1)*. These data were not available in Kenya, and therefore average earnings for women of different education levels were calculated from the 2021 Kenya Continuous Household Survey full dataset *(60)*. Data were converted to United States dollars at the average annual exchange rate *(61)*, and then adjusted to 2023 United States dollars using the United States Consumer Price Index *(1)*.

In all three countries, the proportion of adolescent girls who completed different levels of education was calculated from SDG 4.1.2 for primary and secondary schooling *(12)* and the latest DHS reports from each country for tertiary education *(34–36)*.

4 COST OF HIV ACQUISITION

The financial costs of HIV include the health system costs of HIV-related services—in particular, antiretroviral therapy—and the individual costs of travelling to appointments and related out-of-pocket expenses, such as purchasing nutritional supplements. A 2021 review calculated global estimates for the lifetime cost of managing HIV and provides figures per World Bank economy classification (e.g. lower income, lower middle income) *(62)*. The median figure for a low-income country such as Rwanda or Uganda or a lower-middle-income country such as Kenya was US$ 6223 *(62)*. The median figure was taken from a Ugandan study *(63)* and included the cost of antiretroviral therapy, other medicines, laboratory tests, inpatient visits, treatment of opportunistic infections and other overheads. A study from Kenya put the lifetime cost at US$ 5356 *(64)*, but this included only the cost of antiretroviral therapy. The Ugandan figure was therefore used as a proxy for the average health-care costs of HIV in Kenya and Rwanda.

The average cost of services for elimination of vertical transmission per mother–baby pair was added to the health-system costs. The costs were different for mothers living with HIV and those not living with HIV *(11)*. For Kenya and Rwanda, the costs were taken from a 2016 study that estimated family-level average annual costs along the prevention of vertical transmission cascade in each country *(65)*. For Uganda, the costs were taken from a 2020 study that estimated costs for a variety of HIV services, including prevention of vertical transmission *(66)*.

Added to these costs was the cost of infant testing at birth and at six weeks among children born to mothers living with HIV. An average sub-Saharan African figure was used for a laboratory-based nucleic acid test rather than a point-of-care test, which was more expensive *(67)*.

Annual individual direct and indirect costs of accessing treatment were taken from a costing study in the rural northwest of the United Republic of Tanzania *(68)* and used as a proxy for Kenya, Rwanda and Uganda. This figure was turned into a lifetime cost by multiplying by the average life expectancy for a person aged 20 years living with HIV. In Rwanda, life expectancy for people living with HIV was a further 33.2 years after diagnosis for women and 22.2 years for men *(69)*. In Uganda, life expectancy for people living with HIV was a further 30.6 years after diagnosis for women and 19.1 years for men *(70)*. No reliable figures could be found for Kenya, and therefore Uganda was used as a proxy given similar life expectancy demographics.

To calculate the costs associated with onward transmission of HIV to sexual partners throughout the lifetime, the incidence/prevalence ratio for each country was used. This ratio compares the number of new HIV infections with the number of people living with HIV within a population. The ratio can be used to calculate the onward transmission rate per person per year. By multiplying by the life expectancy, the average lifetime onward transmission rate per person can be calculated. The incidence/prevalence ratios were taken from 2023 UNAIDS estimates *(11)*. Multiplying by average life expectancy at age 20 years for women and men *(69, 70)*, the lifetime onward transmission rate for young women was 0.49 new HIV infections per young woman living with HIV in Kenya, 0.53 in Rwanda and 0.49 in Uganda. These figures were lower for young men due to a lower life expectancy: 0.31 new infections per young man living with HIV in Kenya, 0.36 in Rwanda and 0.31 in Uganda. The figures were then multiplied by the population sizes of young women and young men living with HIV in each country to get the total expected number of new HIV infections over the lifetime of the young people currently living with HIV.

To calculate the total annual cost of HIV services for young men and young women aged 15–24 years in each country, the latest UNAIDS epidemiological data were used to source the number of young men and women aged 15–24 years living with HIV, the HIV incidence, the number of deliveries to young women living

with HIV and the vertical transmission rate *(11)*. From these figures, the number of new HIV infections per year among this population and the number of children born living with HIV were calculated.

People living with HIV are more susceptible to opportunistic infections and have a higher incidence of chronic comorbidities such as cancer, liver failure and heart disease. These add individual costs—especially in terms of lost earnings—and health-system costs. These costs are not included in this study because they could not be reliably estimated due to a paucity of data *(62)*. For similar reasons, the economic costs of HIV, including the costs associated with premature death and lower productivity at work, are not included *(18)*.

5 COST OF GENDER-BASED VIOLENCE

Gender-based violence has serious consequences for the physical, sexual, reproductive and mental health of women. Gender-based violence is a fundamental violation of women's human rights and has adverse economic and social consequences for men, women, children, families and communities *(9)*. Gender-based violence is a global issue. Multiple studies from high-, middle- and low-income countries have attempted to quantify the costs of various forms of violence against women. These studies focus largely on the costs of services, and economic losses due to lost output, decreased productivity and lower earnings resulting from violence *(71)*. In 2016, UN Women estimated the global cost of violence against women at US$ 1.5 trillion—2% of global GDP.

The incidence of gender-based violence in Kenya, Rwanda and Uganda is high. According to the latest DHS reports for each country, 28.4% of adolescent girls and young women aged 15–24 years had ever experienced physical or sexual violence in Kenya, 35.6% in Rwanda and 49.3% in Uganda *(35–36)*.

Gender-based violence costing studies have been completed for Kenya, Rwanda and Uganda, but each has followed a slightly different methodology and included different aspects. A Kenyan study by the National Gender Equality Commission in 2016 estimated medical-related expenses for survivors of gender-based violence at 10 billion Kenyan shillings per year, a cost to the police of 2 billion Kenyan shillings and a cost to the community of 1.2 billion Kenyan shillings *(72)*. Costs for productivity losses were also included—productivity loss was 14.7 billion Kenyan shillings for serious injuries, 10.5 billion Kenyan shillings for mortality and 8.1 billion Kenyan shillings for minor injuries *(72)*. The total annual cost of gender-based violence to society was estimated at 46.5 billion Kenyan shillings (US$ 581.6 million at 2023 prices). To calculate this figure, the average United States dollar Kenyan shilling exchange rate in 2016 of 101.5 was used *(73)* and then figures were converted to 2023 United States dollar prices *(1)*. Productivity loss contributes to 76% of the total calculated economic burden of gender-based violence in Kenya—0.54% of GDP in 2023 *(72)*.

In Rwanda, a 2020 study found that the minimum cost of gender-based violence was US $28.1 million in 2019 prices *(74)*, which is US$ 33.5 million in 2023 prices *(1)*—approximately 0.24% of GDP in 2023. Costs were grouped into three categories: costs to the survivor (36.8%), government costs such as health-care and legal services (46.5%), and civil society costs (16.7%). Although it is unclear from the study what is included in the costs to survivors of gender-based violence, it appears that loss in productivity is not included to the same extent as in the Kenyan study.

In Uganda, a 2012 study on the economic costs of domestic violence looked at out-of-pocket expenditure for women who had experienced violence, lost productivity due to violence, and costs of providing health, police, local council courts and shelter services to survivors *(75)*. Total out-of-pocket costs were US $7.8 million, split across health care, attending a police station, using local council courts and accessing shelters *(75)*. To calculate a productivity measure, the total number of days lost due to domestic violence per person was calculated: 10% of domestic violence incidents led to injury, leading to 11.3 days of work lost to the woman and seven days of work lost to the woman's partner. For a couple, this is almost a month's wages lost for every incidence of domestic violence *(75)*. The total value of time lost working was US$ 8.8 million, of which the majority is borne by lost earnings of female survivors. The costs for providing services for survivors of domestic violence were US$ 20 million, consisting of US$ 7.3 million to the health system, US$ 7.7 million to the police and US$ 5 million to local council courts. Civil society costs for shelters were US$ 2.1 million *(75)*. In 2011 prices, the total cost of domestic violence in Uganda was US$ 30.9 million, which is US$41.8 million in 2023 prices *(1)*—0.09% of GDP in 2023.

The gender-based violence studies for each country use different methodologies, and all produce results far below the average of 2% of GDP. For example, in Uganda, loss of earnings was the productivity measure, and this made up 3% of the total cost of gender-based violence *(75)*. In Kenya, productivity loss was a broader economic measure of productivity, including the cost of mortality, and made up 76% of the total economic burden of gender-based violence *(72)*. The economic burden of gender-based violence was five times higher in Kenya than in Uganda, despite the total number of young women and girls affected being higher in Uganda (2.5 million in Uganda, 1.6 million in Kenya).

All the studies calculated the total cost to the economy of gender-based violence. The proportion of the female population aged 15–24 years was calculated for each country, and this proportion of the total cost was used.

All the costs provided are minimum costs, because the studies from Kenya and Rwanda did not include any costs associated with men, either as perpetrators or as family members of women who have experienced violence. The study from Uganda accounted for partner loss of earnings when violence led to injury *(75)*.

None of the studies included second-generation costs—the cost of children witnessing and living with violence—such as increased rates of juvenile and adult crime. These elements are therefore not included in this study.

6 RESULTS

COST OF EARLY PREGNANCY

Table 3 outlines the average cost per pregnancy in Kenya, Rwanda and Uganda. Kenya had the lowest cost per pregnancy, of US$ 144.27 (77% health system, 23% individual). In Uganda, the cost per pregnancy was US$ 271.78 (79% health system, 21% individual). The highest cost per pregnancy was in Rwanda, at US$ 314.16 (92% health system, 8% individual).

These are average costs. Some pregnancies will cost much less, especially if there is an early miscarriage. Some pregnancies will be more expensive, both to the health system and to the individual, especially if there are complications during or after childbirth. The average figures, based on the probability of each event happening during a pregnancy, provide a base cost for the calculations that follow.

Table 4 shows the net present value of earnings forgone if an adolescent girl drops out of secondary school. A girl who completes secondary school earns 2.5 times more per year than a girl who drops out of secondary school in Kenya and Uganda, and 2.4 times in Rwanda.

The 29% of girls who complete a post-secondary qualification in Kenya, 8.2% in Rwanda and 7.9% in Uganda earn, respectively, five times, 7.9 times and 3.7 times more than girls who complete only primary school.

The difference in educational achievement is large between the different countries—93% of girls in Kenya but only 37% in Uganda complete primary school. The difference is just as stark for secondary school, with 58% of girls completing secondary school in Kenya but only 21% in Rwanda and 13% in Uganda.

Given the higher gross national product per capita in Kenya, annual wages are much higher in the country. Coupled with the higher proportion of people completing school at different schooling levels, this means the net present value of earnings forgone is much higher in Kenya than in Rwanda or Uganda. In Kenya, the cost in lost lifetime earnings of dropping out of school due to pregnancy is US$ 149 333, compared with US$ 12 730 in Rwanda and US$ 17 314 in Uganda.

TABLE 3. TOTAL COST PER PREGNANCY IN KENYA, RWANDA AND UGANDA

SERVICE	KENYA		
	WEIGHTED PROBABILITY	COST PER SERVICE (2023 US$)	COST PER PREGNANCY (2023 US$)
HEALTH-SERVICE COSTS			
Miscarriage requiring medical intervention	0.019	63.10	1.19
Ectopic pregnancy	0.020	178.64	3.57
Antenatal care	0.657	28.50	18.71
Delivery			
Home delivery	0.077	0.00	0.00
Public hospital vaginal delivery	0.394	22.00	8.68
Public hospital caesarean delivery	0.071	146.00	10.40
Private hospital vaginal delivery	0.081	169.11	13.63
Private hospital caesarean delivery	0.031	478.76	14.86
Other	0.002	55.20	0.11
Complications			
Eclampsia	0.007	166.69	1.10
Postpartum haemorrhage	0.018	115.94	2.06
Low birth weight	0.066	554.37	36.40
Total health-system cost of early pregnancy			**110.69**
CLIENT COSTS			
Miscarriage	0.111	40.75	4.53
Ectopic pregnancy	0.020	93.40	1.87
Antenatal care	0.657	4.72	3.10
Vaginal delivery	0.552	11.07	6.12
Caesarean delivery	0.102	12.97	1.33
Eclampsia	0.007	169.79	1.11
Maternal haemorrhage	0.018	181.92	3.23
Low birth weight	0.066	187.26	12.30
Total client cost of early pregnancy			**33.58**
Total cost of early pregnancy			**144.27**

TABLE 3. CONTINUED

SERVICE	RWANDA		
	WEIGHTED PROBABILITY	COST PER SERVICE (2023 US$)	COST PER PREGNANCY (2023 US$)
HEALTH-SERVICE COSTS			
Miscarriage requiring medical intervention	0.019	123.41	2.33
Ectopic pregnancy	0.020	430.35	8.61
Antenatal care	0.748	51.26	38.33
Delivery			
Home delivery	0.019	0.00	0.00
Public hospital vaginal delivery	0.608	104.097	63.25
Public hospital caesarean delivery	0.108	421.38	45.53
Private hospital vaginal delivery	0.003	278.95	0.84
Private hospital caesarean delivery	0.004	1129.16	4.22
Other	0.007	104.10	0.70
Complications			
Eclampsia	0.007	346.57	2.59
Postpartum haemorrhage	0.020	165.02	3.33
Low birth weight	0.070	623.32	43.82
Total health-system cost of early pregnancy			**213.53**
CLIENT COSTS			
Miscarriage	0.019	40.75	0.77
Ectopic pregnancy	0.020	155.08	3.10
Antenatal care	0.748	4.72	3.53
Vaginal delivery	0.629	31.74	19.97
Caesarean delivery	0.112	145.59	16.28
Eclampsia	0.007	83.79	0.63
Maternal haemorrhage	0.020	40.62	0.82
Low birth weight	0.070	187.26	13.16
Total client cost of early pregnancy			**58.25**
Total cost of early pregnancy			**271.78**

TABLE 3. CONTINUED

SERVICE	UGANDA		
	WEIGHTED PROBABILITY	COST PER SERVICE (2023 US$)	COST PER PREGNANCY (2023 US$)
HEALTH-SERVICE COSTS			
Miscarriage requiring medical intervention	0.02	183.25	4.52
Ectopic pregnancy	0.02	101.18	2.02
Antenatal care	0.70	56.47	39.66
Delivery			
Home delivery	0.15	0.00	0.00
Public hospital vaginal delivery	0.44	52.39	23.23
Public hospital caesarean delivery	0.04	96.66	3.63
Private hospital vaginal delivery	0.10	146.96	14.05
Private hospital caesarean delivery	0.01	265.47	3.01
Other	0.01	52.39	0.35
Complications			
Eclampsia	0.01	187.44	1.32
Postpartum haemorrhage	0.02	130.38	2.47
Low birth weight	0.07	623.38	43.78
Total health-system cost of early pregnancy			**138.04**
CLIENT COSTS			
Miscarriage	0.02	34.44	0.85
Ectopic pregnancy	0.02	7.72	0.15
Antenatal care	0.70	4.72	3.31
Vaginal delivery	0.69	6.32	4.37
Caesarean delivery	0.05	7.25	0.35
Eclampsia	0.01	166.21	1.17
Maternal haemorrhage	0.02	139.72	2.65
Low birth weight	0.07	187.26	13.15
Total client cost of early pregnancy			**26.01**
Total cost of early pregnancy			**314.16**

TABLE 4. NET PRESENT VALUE OF EARNINGS FORGONE IF AN ADOLESCENT GIRL DROPS OUT OF SECONDARY SCHOOL

INDICATOR	KENYA	RWANDA	UGANDA
Annual wage if primary school completed (2023 US$)	2548.82	516.97	526.72
Annual wage if lower secondary school completed (2023 US$)	3134.21	727.71	790.09
Annual wage if upper secondary school completed (2023 US$)	4040.20	1252.11	1316.81
Annual wage if tertiary qualification completed (2023 US$)	9148.13	4106.53	1967.69
Probability of completing primary school (female)	0.9295	0.6772	0.3682
Probability of completing lower secondary school (female)	0.8617	0.3185	0.2009
Probability of completing upper secondary school (female)	0.5832	0.2145	0.1312
Probability of completing tertiary education (female)	0.291	0.082	0.079
Net present value of earnings forgone (US$ 2023)	**64 315.60**	**12 729.97**	**17 314.25**

The number of girls who drop out of school due to pregnancy in each country is an absolute figure rather than a percentage of school-leavers *(50–52)*. Uganda has a higher number of deliveries among adolescent girls compared with Kenya and Rwanda (Table 5). Due to the lower proportion of girls in school in Uganda, however, the total number of girls who drop out due to pregnancy is much smaller. It is assumed that girls who are reported as dropping out of school do not return and would have had an equal chance as their peers of completing their education to a higher level.

TABLE 5. CALCULATING THE COST OF INACTION FOR EARLY PREGNANCY

	KENYA		
	NUMBER	COST PER UNIT (US$ 2023)	COST OF INACTION (US$ 2023)
Financial costs to health system per pregnancy	299 162	110.69	33 114 241
Financial costs to individual per pregnancy	299 162	33.58	10 045 860
Number of deliveries to adolescent girls and young women aged 15–19 years	196 430		
Number of girls who drop out of school due to pregnancy, resulting in loss of earnings	13 000	64 315.60	836 102 761
Number of adolescent boys who drop out of school due to early fatherhood, resulting in loss of earnings	Unknown	64 315.60	Unable to quantify
Total cost of inaction of early pregnancy			**879 262 862**

TABLE 5. CONTINUED

	RWANDA		
	NUMBER	COST PER UNIT (US$ 2023)	COST OF INACTION (US$ 2023)
Financial costs to health system per pregnancy	32 987	213.53	7 043 714
Financial costs to individual per pregnancy	32 987	58.25	1 921 492
Number of deliveries to adolescent girls and young women aged 15–19 years	24 674		
Number of girls who drop out of school due to pregnancy, resulting in loss of earnings	13 000	12 729.97	165 489 658
Number of adolescent boys who drop out of school due to early fatherhood, resulting in loss of earnings	Unknown	12 729.97	Unable to quantify
Total cost of inaction of early pregnancy			**174 454 864**

	UGANDA		
	NUMBER	COST PER UNIT (US$ 2023)	COST OF INACTION (US$ 2023)
Financial costs to health system per pregnancy	427 351	138.04	58 991 532
Financial costs to individual per pregnancy	427 351	26.01	11 115 400
Number of deliveries to adolescent girls and young women aged 15–19 years	300 001		
Number of girls who drop out of school due to pregnancy, resulting in loss of earnings	8116	17 314.25	140 522 482
Number of adolescent boys who drop out of school due to early fatherhood, resulting in loss of earnings	Unknown	17 314.25	Unable to quantify
Total cost of inaction of early pregnancy			**210 629 414**

Table 6 shows the total cost of early pregnancy in each country. The cost of early pregnancy among adolescent girls is calculated by multiplying the number of adolescent pregnancies among people aged 15–19 years each year by the average cost per pregnancy. This gives a total cost of US$ 43.1 million for Kenya, US$ 9 million for Rwanda and US$ 70.1 million for Uganda.

The numbers of girls dropping out of school due to pregnancy are given for each country *(50–52)*, and these numbers are used to calculate the magnitude of the opportunity cost in terms of wages lost. The cost of lost wages is US$ 836 million in Kenya, US$ 165 million in Rwanda and US$ 140 million in Uganda. The number of adolescent boys who drop out of school due to early fatherhood is unknown and cannot be quantified.

This leads to total annual costs of early pregnancy of US$ 879 million for Kenya, US$ 174.5 million for Rwanda and US$ 210.6 million for Uganda.

COST OF HIV ACQUISITION

Table 5 summarizes the total lifetime cost to society of HIV among people aged 15–24 years.

In Kenya, the cost to society of HIV among young people is US$ 79.0 million (US$ 64.7 million for young women, US$ 14.3 million for young men). In Rwanda, the cost is US$ 9.2 million (US$ 7.6 million for young women, US$ 1.6 million for young men). In Uganda, the cost is US$ 203.4 million (US$ 167.5 million for young women, US$ 35.8 million for young men). This is the lifetime cost for all men and women aged 15–24 years currently living with HIV. Uganda has the highest costs due to having a higher number of women and men aged 15–24 years living with HIV, and an estimated 15 025 new infections among young women and 5982 new infections among young men each year. This compares with 5722 and 1587 new infections each year among young women and young men, respectively, in Kenya. In Rwanda, due to the lower prevalence and smaller population size, there are an estimated 663 and 173 new infections each year among young women and young men, respectively.

Given the disproportionate burden of HIV among women, with a higher rate of HIV acquisition among young women and the direct impact of vertical transmission, the cost of HIV is much higher among young women than young men in all three countries.

COST OF GENDER-BASED VIOLENCE

The total annual cost to the economy of gender-based violence in Kenya is US$ 581.6 million among women aged 15–49 years. Adolescent girls and young women make up 40.5% of this population group. Assuming gender-based violence happens at the same rate regardless of age, the cost of gender-based violence among adolescent girls and young women is US$ 235.3 million per year (Table 7). Most of this (72%) is the cost to survivors, because it includes the costs of seeking help, including medical and legal costs, and productivity losses due to injury and death.

TABLE 6. TOTAL LIFETIME COST OF HIV AMONG PEOPLE AGED 15–24 YEARS

INDICATOR	KENYA		
	NUMBER	COST PER PERSON (US$ 2023)	COST OF INACTION (US$ 2023)
ADOLESCENT GIRLS AND YOUNG WOMEN LIVING WITH HIV			
Lifetime health-system cost of HIV	5722	6223	35 605 360
Lifetime cost to individual	5722	1063	6 083 054
Total lifetime HIV cost	5722	7285.64	41 688 414
HIV prevalence among women aged 15–24 years	1.7%		
Number of deliveries to young women living with HIV and cost of elimination of vertical transmission per mother–baby pair	3339	87.53	292 289
Vertical transmission rate	9%		
Number of children born living with HIV to adolescent girls and young women aged 15–19 years living with HIV and lifetime HIV cost	301	7285.64	2 189 615
Number of incidents of onward transmission of HIV per person over a lifetime	0.49		
Onward HIV transmission costs	2819	7285.64	20 538 214
Total cost to society of HIV among adolescent girls and young women aged 15–24 years			**64 708 531.90**
ADOLESCENT BOYS AND YOUNG MEN LIVING WITH HIV			
Lifetime health-system cost of HIV	1587	6222.54	9 875 167
Lifetime cost to individual	1587	663.57	1 053 083
Total lifetime HIV cost	1587	6886.11	10 928 250
Number of incidents of onward transmission of HIV per person over a lifetime	0.31		
Onward HIV transmission costs	488	6886.11	3 360 546
Total cost to society of HIV among young men aged 15–24 years			**14 288 797**
Total cost of inaction of HIV among young people aged 15–24 years			**78 997 328**

TABLE 6. CONTINUED

INDICATOR	RWANDA		
	NUMBER	COST PER PERSON (US$ 2023)	COST OF INACTION (US$ 2023)
ADOLESCENT GIRLS AND YOUNG WOMEN LIVING WITH HIV			
Lifetime health-system cost of HIV	663	6223	4 125 542
Lifetime cost to individual	663	1153	764 723
Total lifetime HIV cost	663	7375.97	4 890 265
HIV prevalence among women aged 15–24 years	0.9%		
Number of deliveries to young women living with HIV and cost of elimination of vertical transmission per mother–baby pair	222.07	49.45	10 981
Vertical transmission rate	5%		
Number of children born living with HIV to adolescent girls and young women aged 15–19 years living with HIV and lifetime HIV cost	11	7375.97	81 898
Number of incidents of onward transmission of HIV per person over a lifetime	0.53		
Onward HIV transmission costs	354	7375.97	2 613 945
Total cost to society of HIV among adolescent girls and young women aged 15–24 years			**7 597 088.12**
ADOLESCENT BOYS AND YOUNG MEN LIVING WITH HIV			
Lifetime health-system cost of HIV	173	6222.54	1 076 499
Lifetime cost to individual	173	771.27	133 429
Total lifetime HIV cost	173	6993.81	1 209 928
Number of incidents of onward transmission of HIV per person over a lifetime	0.36		
Onward HIV transmission costs	62	6993.81	432 453
Total cost to society of HIV among young men aged 15–24 years			**1 642 381**
Total cost of inaction of HIV among young people aged 15–24 years			**9 239 469**

TABLE 6. CONTINUED

INDICATOR	UGANDA		
	NUMBER	COST PER PERSON (US$ 2023)	COST OF INACTION (US$ 2023)
ADOLESCENT GIRLS AND YOUNG WOMEN LIVING WITH HIV			
Lifetime health-system cost of HIV	15 025	6223	93 493 627
Lifetime cost to individual	15 025	1063	15 973 066
Total lifetime HIV cost	15 025	7285.64	109 466 693
HIV prevalence among women aged 15–24 years	2.5%		
Number of deliveries to young women living with HIV and cost of elimination of vertical transmission per mother–baby pair	7500	43.14	323 545
Vertical transmission rate	7%		
Number of children born living with HIV to adolescent girls and young women aged 15–19 years living with HIV and lifetime HIV cost	525	7285.64	3 824 969
Number of incidents of onward transmission of HIV per person over a lifetime	0.49		
Onward HIV transmission costs	7402	7285.64	53 929 861
Total cost to society of HIV among adolescent girls and young women aged 15–24 years			**167 545 067.81**
ADOLESCENT BOYS AND YOUNG MEN LIVING WITH HIV			
Lifetime health-system cost of HIV	3982	6222.54	24 778 145
Lifetime cost to individual	3982	663.57	2 642 330
Total lifetime HIV cost	3982	6886.11	27 420 474
Number of incidents of onward transmission of HIV per person over a lifetime	0.31		
Onward HIV transmission costs	1225	6886.11	8 432 070
Total cost to society of HIV among young men aged 15–24 years			**35 852 544**
Total cost of inaction of HIV among young people aged 15–24 years			**203 397 612**

TABLE 7. TOTAL COST OF GENDER-BASED VIOLENCE AMONG ADOLESCENT GIRLS AND YOUNG WOMEN AGED 15–24 YEARS

INDICATOR	KENYA	
	TOTAL ANNUAL COST (US$ 2023)	ANNUAL COST AMONG WOMEN AGED 15-24 YEARS (US$ 2023)
Cost to survivor, including lost productivity costs	416 470 931	168 535 121
Government costs	150 079 615	60 733 377
Civil society and community costs	15 007 961	6 073 338
Second-generation costs		Unable to quantify
Costs associated with male perpetrators of violence		Unable to quantify
Cost of gender-based violence among adolescent girls and young women aged 15-24 years		**235 341 835**

INDICATOR	RWANDA	
	TOTAL ANNUAL COST (US$ 2023)	ANNUAL COST AMONG WOMEN AGED 15-24 YEARS (US$ 2023)
Cost to survivor, including lost productivity costs	12 342 355	4 846 140
Government costs	15 592 149	6 122 149
Civil society and community costs	5 583 036	2 192 140
Second-generation costs		Unable to quantify
Costs associated with male perpetrators of violence		Unable to quantify
Cost of gender-based violence among adolescent girls and young women aged 15-24 years		**13 160 429**

INDICATOR	UGANDA	
	TOTAL ANNUAL COST (US$ 2023)	ANNUAL COST AMONG WOMEN AGED 15-24 YEARS (US$ 2023)
Cost to survivor, including lost productivity costs	11 891 906.8	5 430 210
Government costs	27 132 171	12 389 383
Civil society and community costs	2 778 776	1 268 875
Second-generation costs		Unable to quantify
Costs associated with male perpetrators of violence		Unable to quantify
Cost of gender-based violence among adolescent girls and young women aged 15-24 years		**19 088 467**

In Rwanda, the total annual cost of gender-based violence is US$ 33.5 million among women aged 15–49 years. Adolescent girls and young women aged 15–24 years make up 39.3% of this population, and so the total annual cost of gender-based violence to adolescent girls and young women is US$ 13.6 million. The cost to the Rwandan Government, including the health and justice systems, is the largest cost component, accounting for 46.5% of total costs. It is unclear what level of productivity losses are included within the study, and so it is not possible to compare the costs directly with the costs in Kenya.

In Uganda, the total annual cost of gender-based violence is US$ 41.8 million among women aged 15–49 years. Adolescent girls and young women aged 15–24 years make up 45.7% of this population, and so the total annual cost of gender-based violence to adolescent girls and young women is US$ 19.1 million. The highest proportion of costs (65%) is attributed to the Ugandan Government for the health system, police and community courts.

All of these figures are underestimates because the studies largely ignore the costs to male perpetrators and do not include second-generation costs associated with gender-based violence.

The latest DHS for all three countries found that the prevalence of sexual violence was greater among less educated women than among women with secondary or higher education *(34–36)*. The highest difference was in Uganda, where 14.9% of women with only primary or lower education had experienced sexual violence in the previous 12 months, compared with 8.2% of women with secondary or higher education *(35)*. This shows other adverse consequences for dropping out of school, including due to early pregnancy.

TOTAL COST OF YOUTH SEXUAL AND REPRODUCTIVE ILL HEALTH

To put the figures for the total cost of inaction into context, it is instructive to compare them with the latest national GDP figures (Table 8).

The latest GDP figures available for Kenya, Rwanda and Uganda are for 2023 *(16)*. The GDP in current United States dollars has been used because this matches the costing numbers, which are also provided in current United States dollars. The GDP in 2023 was US$ 108 billion in Kenya, US$ 14.1 billion in Rwanda and US$ 48.8 billion in Uganda.

The total cost in Kenya is equivalent to 1.1% of annual GDP—that is, for every US$ 100 spent in the country over the course of a year, US$ 1.10 pays for the effects of the lack of SRHR services, or opportunity costs of future value and income forgone due to the consequences of these actions. The biggest contributing factors are the costs to society of early pregnancy (0.81% of GDP) and gender-based violence (0.22% of GDP).

In Rwanda, the total cost of not realizing SRHR for young people is equivalent to 1.40% of GDP, driven mainly by the cost of early pregnancy (1.24% of GDP). In Uganda, the total cost of not realizing SRHR for young people is equivalent to 0.90% of GDP, driven mainly by the costs of early pregnancy (0.43% of GDP) and HIV among adolescent girls and young women (0.34% of GDP).

TABLE 8. TOTAL COST OF INACTION AND COMPARISON WITH NATIONAL GDP

INDICATOR	KENYA	
	COST (2023 US$)	PROPORTION OF GDP
GDP (2023 US$)	108 038 588 970	
Total cost to society of early pregnancy	879 262 862	0.81%
Total cost to society of HIV among adolescent girls and young women aged 15–24 years	64 708 532	0.06%
Total cost to society of HIV among adolescent boys and young men aged 15–24 years	14 288 797	0.01%
Total cost to society of gender-based violence among adolescents and young people aged 15–24 years	235 341 835	0.22%
Total cost	**1 193 602 026**	**1.10%**

INDICATOR	RWANDA	
	COST (2023 US$)	PROPORTION OF GDP
GDP (2023 US$)	14 097 768 470	
Total cost to society of early pregnancy	174 454 864	1.24%
Total cost to society of HIV among adolescent girls and young women aged 15–24 years	7 597 088	0.05%
Total cost to society of HIV among adolescent boys and young men aged 15–24 years	1 642 381	0.01%
Total cost to society of gender-based violence among adolescents and young people aged 15–24 years	13 160 429	0.09%
Total cost	**196 854 762**	**1.40%**

INDICATOR	UGANDA	
	COST (2023 US$)	PROPORTION OF GDP
GDP (2023 US$)	48 768 955 860	
Total cost to society of early pregnancy	210 629 414	0.43%
Total cost to society of HIV among adolescent girls and young women aged 15–24 years	167 545 068	0.34%
Total cost to society of HIV among adolescent boys and young men aged 15–24 years	35 852 544	0.07%
Total cost to society of gender-based violence among adolescents and young people aged 15–24 years	19 088 467	0.04%
Total cost	**433 115 493**	**0.90%**

Of the three countries, Kenya has the highest cost of poor provision of youth SRHR, at US$ 1.2 billion per year. As a proportion of GDP, however, due to its smaller economy, Rwanda faces the largest burden. In both Kenya and Rwanda, early pregnancy leads to the highest costs.

Of the three countries, Uganda has the highest cost due to HIV.

Uganda has lower overall costs as a proportion of GDP compared with Kenya and Rwanda. The main drivers of this are lower overall education levels, which mean that although early pregnancy has the same individual and societal impacts, it has less of an overall economic impact, because many girls drop out of school before they are pregnant. In addition, although more adolescent girls and young women experience gender-based violence in Uganda than in Kenya, the methodology used to calculate the cost of gender-based violence for Uganda is not as expansive as that used for Kenya because it does not include the same types of productivity loss.

SUMMARY

Table 9 outlines the minimum annual costs incurred by not investing adequately in SRHR services.

TABLE 9. SUMMARY OF ANNUAL COSTS OF NOT INVESTING ADEQUATELY IN SRHR SERVICES FOR YOUNG PEOPLE

AREA	COST CATEGORY	COST (US$ 2023) KENYA	RWANDA	UGANDA
EARLY PREGNANCY AMONG ADOLESCENT GIRLS AND YOUNG WOMEN AGED 15–19 YEARS	Health costs—financial costs to health system due to pregnancy	33 114 241	7 043 714	58 991 532
	Health costs—financial cost to individuals due to pregnancy	10 045 860	1 921 492	11 115 400
	Economic costs—loss of lifetime earnings to adolescent mothers due to dropping out of school	836 102 761	165 489 658	140 522 482
	Economic costs—loss of lifetime earnings to adolescent fathers due to dropping out of school	Unable to quantify	Unable to quantify	Unable to quantify
Total cost of early pregnancy		**879 262 862**	**174 454 864**	**210 629 414**
HIV AMONG PEOPLE AGED 15–24 YEARS	*Young women living with HIV*			
	Lifetime cost of HIV to health system	35 605 360	4 125 542	93 493 627
	Lifetime cost of HIV to individuals	6 083 054	764 723	15 973 066
	Elimination of vertical transmission cost	292 289	10 981	323 545
	Lifetime HIV-related costs for children born living with HIV	2 189 615	81 898	3 824 969
	Lifetime onward transmission costs	20 538 214	2 613 945	53 929 861
	Young men living with HIV			
	Lifetime cost of HIV to health system	9 875 167	1 076 499	24 778 145
	Lifetime cost of HIV to individuals	1 053 083	133 429	2 642 330
	Lifetime onward transmission costs	3 360 546	432 453	8 432 070
	Young women and young men living with HIV			
	Financial costs due to higher incidence of opportunistic infections and chronic comorbidities	Unable to quantify	Unable to quantify	Unable to quantify
	Economic cost of living with HIV	Unable to quantify	Unable to quantify	Unable to quantify
Total cost of HIV		**78 997 328**	**9 239 469**	**203 397 612**
GENDER-BASED VIOLENCE AMONG PEOPLE AGED 15–24 YEARS	Cost to survivors, including lost productivity costs	168 535 121	4 846 140	5 430 210
	Government costs	60 733 377	6 122 149	12 389 383
	Civil society and community costs	6 073 338	2 192 140	1 268 875
	Second-generation costs	Unable to quantify	Unable to quantify	Unable to quantify
	Costs to male perpetrators of violence	Unable to quantify	Unable to quantify	Unable to quantify
Total costs		**235 341 835**	**13 160 429**	**19 088 467**
Total cost of early pregnancy, HIV and gender-based violence		**1 193 602 026**	**196 854 762**	**433 115 493**

7 DISCUSSION

Inaction in the provision of effective, youth-friendly SRHR services is placing a huge burden on young people in Kenya, Rwanda and Uganda. Early pregnancy rates are high, leading to young people dropping out of school. HIV infection rates remain high, especially in Uganda. Gender-based violence continues to be pervasive. These costs impose a lifelong burden for the people directly affected, with ripple effects on families, communities and countries.

This report presents a fuller picture of the current cost of the status quo on youth SRHR. The next step is to compare these costs with the costs and relative impacts of different policy options for supporting youth SRHR. This report does not outline or cost any specific interventions. Prioritization should happen through multisectoral and multistakeholder discussions at the country level. Based on current best practice and evidence, it is likely that urgent action needs to be taken across the five interlinked areas described below.

KEEPING GIRLS IN SCHOOL

Adolescent girls bear the disproportionate burden of early pregnancy *(76)*. As this study shows, the lifetime economic and health costs of adolescent girls dropping out of school are substantial. DHS data from Kenya, Rwanda and Uganda show that lower levels of education can lead to higher levels of physical and sexual violence *(34–36)*. Leaving school early leads to lower lifetime income, which increases the likelihood of higher levels of poverty, poorer health outcomes and shorter lives *(77)*. A concerted effort is needed to stop girls from dropping out of school, whether due to economics, family pressure, child marriage, early pregnancy or other reasons.

An evaluation of a Networking HIV and AIDS Community of Southern Africa and Global Fund to Fight AIDS, Tuberculosis and Malaria project between 2014 and 2018 in a selection of schools in poorer economic areas found that the following interventions worked well *(78)*:

- Girls formed a self-organized peer education club that met once a week and used printed resources to form the basis of group discussions.
- Teaching support was offered to girls who are behind academically.
- CSE was provided by nongovernmental organizations to girls during school hours. It was recommended that boys were also included in some classes, such as on the use of contraception. These classes should be delivered in an engaging manner using interactive, game-based methods.
- Several girls were identified as being at risk of dropping out of school. They were followed up through home visits and referred to a lead social worker if necessary. The involvement of parents and community members must be strengthened to help girls make positive choices outside of school.

Additional studies suggest that social protection measures such as cash stipends, support with fees and offering food at school can significantly reduce school dropout rates among adolescent girls and support SRHR outcomes *(79, 80)*. For example, in rural Zambia, the RISE trial showed that adolescent girls who consistently received cash transfers were more than eight times more likely to stay in school than those who did not *(79)*.

Although the legal age of marriage is 18 years, 34% of girls aged under 18 years are married in Uganda, 12.5% in Kenya and 5.5% in Rwanda *(34–36)*. These high rates of child marriage are a reason for girls dropping out of school—only 13.1% of girls complete secondary school in Uganda *(12)*.

Pregnancy prevention efforts tend to focus on young women, but young men have an important role to play in reducing rates of early pregnancy. Prevention efforts should recognize current varying views among young men on the importance of contraception and which partner(s) should be responsible for its use. Limited contraception knowledge is a problem. Health-care and education providers and community-led organizations all have important roles to play as sources of reliable SRHR information for young men *(81)*.

Involving adolescent fathers is important. Despite the common cultural portrayal of absent teenage fathers, research finds that young men are willing to be involved in the lives of their babies—but there is often a lack of appropriate support or help for them to achieve this *(82–84)*. The impact of teenage fatherhood has far-reaching educational, economic and social consequences. One study in South Africa found that 90% of adolescent boys who became fathers dropped out of school, driven primarily by social norms and the need to provide financially for their children *(54)*. Similar data could not be found for Kenya, Rwanda or Uganda. Dropping out of school has a lifelong impact on earnings potential for adolescent girls and boys. Supporting young fathers to take up their roles and responsibilities will reduce the probability that they drop out of school and enable them to provide better support for young mothers, in turn enabling them to stay in school. It will also be beneficial for the ongoing development and outcomes for the child *(84)*. Much of the research on involving adolescent fathers comes from developed country contexts in Europe, North America and New Zealand. Further research specifically in African settings is needed.

To keep girls in school, it is necessary to work with groups of young women and men to find out whether there are any activities or information that would nudge them in the direction of staying in school. For example, explaining that one consequence of dropping out of school early would reduce their lifetime income by US$ 64 500 in Kenya, US$ 12 750 in Rwanda and US$ 17 500 in Uganda might encourage girls to stay in school or engage with programmes that will help them do so. Many young women and men do not realize they are making an expensive decision that will have implications on their earning potential for the rest of their life. More research is needed on how to best implement this.

BREAKING DOWN THE DIVIDE BETWEEN THE HEALTH AND EDUCATION SECTORS TO IMPROVE THE QUALITY OF CSE PROGRAMMES PROVIDED

CSE is a curriculum-based process of teaching and learning about the cognitive, emotional, physical and social aspects of sexuality. It provides people with reliable information that prepares them for a safe, productive and fulfilling life. School-based CSE, when delivered effectively using engaging and interactive game-based methods, empowers young people to make informed decisions about relationships and supports them to avoid early and unintended pregnancy, HIV and other sexually transmitted infections *(85, 86)*. CSE also helps to prevent gender-based violence because it reinforces concepts related to healthy relationships and access to prevention and support services *(85)*.

In 2013, a ministerial commitment on CSE and SRHR services for adolescents and young people in eastern and southern Africa was signed by representatives from 21 countries across the region *(87)*. This commitment generated a concerted effort on CSE, but a review found that "the long-standing divide between health and education persists in many countries, making practical collaboration challenging" *(88)*.

This divide needs to be overcome so that high-quality CSE can be provided to young people both in and out of school. It requires blended rather than vertical financing for CSE programmes, jointly managed by the health and education departments, and a more effective monitoring and evaluation system based on the targets set by the Eastern and Southern African Commitment. Many indicators are currently being collected too infrequently for reliable tracking of what is and is not working *(88)*. Joint reporting requirements are needed to further strengthen collaborative work between the health and education sectors. One example is the Our Rights, Our Lives, Our Future (O3) programme across eastern and southern Africa, which in each participating country included collaboration between secondary education institutions, the ministry of education and UNESCO for the provision of CSE and greater uptake by students of high-quality SRHR services and information *(89)*.

Collaborative work should take place at the community level between teachers, health-care providers, community-led organizations and peer-led programmes to increase understanding between all groups on the specific SRHR-related needs of adolescents in their communities. These interactions can improve knowledge and understanding of CSE, increase the quality of CSE in classroom settings, and improve non-stigmatizing access to contraceptives and other SRHR services, including for gender-based violence. For example, provision of contraceptives in a school is allowed by law in South Africa for learners aged over 12 years *(90)*. The current policy, however, is that condoms are available only through an authority figure on school premises, placing a significant barrier to access due to the taboo nature of sex among adolescents *(91)*. For this policy to work, condoms need to be provided in a supportive and confidential manner; if this is not possible within a school setting, condoms should be provided through partnerships with other trusted and reliable service providers.

INCREASING ACCESS TO YOUTH-FRIENDLY SRHR SERVICES

Youth-friendly SRHR services are essential to ensure the health of adolescents, and especially to prevent unintended pregnancy and HIV *(92)*. There is no specific age of consent to access contraception in any of the three countries *(13)*, but barriers persist, as shown by the high levels of early and unplanned pregnancy in all three countries.

In all three countries, key actions for the achievement of accessible youth-friendly SRHR services include the following *(93)*:

- Ensure confidentiality for young people at health facilities. As an example, a young person asked by the receptionist why they have come to the clinic or seeing people from their community in the waiting room may be reluctant to attend health services.
- Ensure health-care providers are open and friendly. Caregivers are needed who do not stigmatize young people and have a supportive approach. This includes a specific focus on young people from key populations who particularly value confidentiality and are often the most marginalized from such services because of negative health provider attitudes *(94)*.
- Provide free contraceptive services, including condoms, for adolescent girls. The cost of not providing these will be much higher in the long term.
- Offer peer-led education and meaningful youth engagement. Integrating trained peer educators into SRHR service delivery, particularly when linked to the education and health sectors, has been shown to improve knowledge, attitudes and uptake of services among adolescents, while increasing acceptability and trust in health facilities *(95)*.

REDUCING GENDER-BASED VIOLENCE

Kenya, Rwanda and Uganda have endemic rates of gender-based violence. According to the latest DHS, 28.4% of people aged 15–24 years in Kenya have experienced physical or sexual violence, 35.6% in Rwanda and 49.3% in Uganda *(34–36)*. Disaggregating these data by level of education, the prevalence of gender-based violence is higher among people with lower levels of education *(34–36)*. Gender-based violence is closely linked to HIV, both directly because trauma increases the risk of HIV transmission and indirectly. Survivors of childhood sexual abuse are more likely to be living with HIV and to show high-risk behaviours. Perpetrators of gender-based violence are also at higher risk of HIV infection *(96)*.

Reducing gender-based violence is an essential component of addressing the current cost of inaction on SRHR for adolescent girls and young women. Key strategies to achieving this include the following:

- Provide gender-based violence clinical services in lower-level health facilities, where key interventions such as emergency contraception, HIV post-exposure prophylaxis, and counselling and support are administered. Bringing services closer to the community, particularly in rural areas, enables faster access. Although this could be seen as simply dealing with the symptoms of gender-based violence, swift action in this area helps to mitigate the worst of the consequences *(97)*.
- Educate young people, such as through CSE programmes, to prevent gender-based violence, including understanding the root causes of violence; stopping the use of sexist and discriminatory language; stopping abuse, sexual harassment and blaming of survivors; creating safe spaces to discuss gender-based violence; being supportive and believing the stories of violence from survivors; and understanding and practising consent *(98)*.
- Scale up community-based gender transformative programmes that work with both women and men. Examples of programmes that have changed harmful gender norms that lead to the perpetration of gender-based violence include the HeForShe community-based initiative on engaging men and transforming harmful norms to prevent violence and HIV, the SASA! community mobilization intervention, the Sonke Gender Justice One Man Can campaign, and Stepping Stones *(99)*.

A comprehensive approach is needed, tied closely with gender equality goals. These should be addressed urgently.

PREVENTING HIV INFECTION

In Uganda, 166 000 people aged 15–24 years are living with HIV, and more than 19 000 young people (79% of whom are adolescent girls and young women) acquire HIV each year. If the HIV prevalence/incidence ratio stays the same, these 19 000 young people will transmit HIV to another 8600 people *(11)*.

In Kenya, 145 000 people aged 15–24 years are living with HIV, and 7300 young people acquire HIV each year (78% of whom are adolescent girls and young women). In Rwanda, 20 000 people aged 15–24 years are living with HIV, and more than 800 young people (79% of whom are adolescent girls and young women) acquire HIV each year *(11)*.

In all three countries, almost four in five new HIV infections among young people are among adolescent girls and young women, demonstrating the importance of taking a gender perspective.

A combination HIV prevention approach remains important to meet the specific needs of adolescents and young people, focusing on a combination of biomedical, behavioural and structural interventions. These interventions include easy access to condoms, continuing voluntary medical male circumcision campaigns, ensuring high-quality CSE, prevention of vertical transmission of HIV, and offering pre-exposure prophylaxis to young people from groups with a high incidence of HIV *(100)*.

Scaling up sustainable youth-led responses is essential for HIV prevention. Young people should not be seen only as recipients of interventions but should be empowered to be agents of change *(101)*. It is important to remove legal and policy barriers to accessing services and support peer-led education approaches as part of the prevention package.

THE WAY AHEAD

The cost of inaction related to the SRHR of young women and men in Kenya, Rwanda and Uganda paints a stark picture of the impact of current policies. This report provides a rallying call for political leaders and government officials and demonstrates that action to improve the SRHR of young people is urgently needed *(102)*. The report calculates the total and unit costs of adverse outcomes. The next step is to compare these costs with the costs and relative impacts of different policy and programme options for supporting youth SRHR. Each option needs to be assessed regarding its impact on keeping girls in school, reducing the rate of early pregnancy, preventing HIV, and reducing the prevalence of gender-based violence. The cost of the intervention can then be assessed against the cost of the status quo outlined in this report to ascertain the cost of inaction.

Taking urgent action in the interlinked areas outlined above requires a multisectoral response that includes joint work by the health, education, social and community development sectors. It also requires a legal environment that is supportive of the health goals to be achieved. Given the economic impact of the current inaction, additional actors such as economic development, the ministries of finance and treasury and budget committees in parliament need to be involved. Ways of working need to be changed to force a move out of traditional siloed approaches by providing incentives for joint approaches through joint staffing and budgets. Shared monitoring and evaluation frameworks, as part of a clear accountability framework, need to be developed to frequently and quickly measure whether progress is being made in the right direction, allowing for swift recalibration and further innovation, if required.

A multistakeholder approach is needed. Young people are key stakeholders whose participation is not optional in the design and implementation of programmes. Young people have the most to lose—but also the most to gain—from improved SRHR services and education. The process should be driven by young people themselves, with families and communities involved.

Business as usual is not going to work. There is a need for comprehensive action. Real change requires a proactive, prevention-based response rather than a reactive response. This is the crux of youth SRHR highlighted by the cost of inaction. Act early, before the damage has been done, or things will become much worse.

8 CONCLUSION

Inaction in supporting the HIV and SRHR needs of young people in Kenya, Rwanda and Uganda has lifelong consequences for individuals, families and communities. The total annual cost is US$ 1.2 billion in Kenya (equivalent to 1.1% of GDP), US$ 197 million in Rwanda (1.4% of GDP) and US$ 433 million in Uganda (0.9% of GDP). Urgent action is needed to improve services that support the SRHR and HIV needs of young people, including effective CSE, greater access to youth-friendly SRHR services, and easy access to condoms and a wide choice of other contraceptive methods.

Working hand in hand with the education sector is important. If an adolescent girl becomes pregnant, she needs support to stay in school and to manage the way forward.

Comprehensive HIV and gender-based violence prevention programmes are needed. Wider social and legal factors should be considered, such as prevalence of early marriage, and lack of access to SRHR and HIV services due to parental consent, criminalization and other legal barriers. Meaningfully involving young people in bringing about this change and building youth leadership and the capacity of youth-led organizations are key parts of this. Ultimately, if we care about our children and their future, these are actions we have no choice but to undertake.

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