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Global Fund Investments in Adolescents and Youth in Eastern and Southern Africa for the years 2018-2021

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Preface

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Background

The Global Fund to fight HIV/AIDS, Tuberculosis and Malaria

The Global Fund to fight HIV/AIDS, Tuberculosis and Malaria (hereafter the Global Fund) was established in 2002 as a major financier of health programs. The Global Fund spends about $4 billion a year to finance programs implemented by local experts (Global Fund, 2018c) in more than 100 countries. The Global Fund invests in those diseases following a funding cycle of about three years. The current grant allocation period covers the years 2017 – 2019 and its implementation period 2018 to 2020. There are a few transition months to prepare for the next allocation period.

Globally, fifty percent of the Global Fund monies are invested in HIV, 18% in TB and 32% in malaria during this allocation period, though the distribution at country level may vary (Global Fund, 2017a).

Allocation and matching fund for the allocation period 2017-2019

The Global Fund provides countries with allocated and matching funds following the process below. First, the Global Fund determines countries allocations based mainly on total resources the Global Fund itself has raised, countries' Gross National Income and disease burden. Second, knowing their allocations, countries apply for funding detailing their plans to fight each disease (Global Fund, 2017a). The application format is standardized with a funding request divided into modules such as prevention programs for general population, comprehensive prevention programs for men who have sex with men, prevention program for adolescents and youth, in and out of school, among others (Global Fund, 2017c). Countries choose the modules for which they wish to apply. Finally, the application is evaluated and if successful, the Global Fund Secretariat and the country Principal Recipient (in other words an implementer) agree on the modalities and sign a contract.

Besides country allocations, the Global Fund offers additional matching funds to selected countries conditional on investments in its strategic priority areas. Countries receive the matching funds only if they dedicate an equal or greater amount than the matching fund to a strategic priority area in their funding request (Global Fund, 2017b). The matching fund does not depend on domestic funding. HIV disease has three strategic priority areas: scale up HIV interventions for key populations, remove human rights barriers to promote access to HIV services and reduce HIV incidence among adolescent girls and young women (AGYW). The Global Fund also offers additional funding through multi-country approaches and strategic initiatives but are not funded through country grants. The multi-country approaches funds regional programs covering several countries that are considered critical to meet Global Fund's objectives. The strategic initiatives funds centrally managed approaches that due to their cross-cutting nature cannot be funded through country grants but are deemed necessary for the success of country allocations (Global Fund, 2018b).

Eastern and Southern Africa regions differ in terms of income per capita and HIV epidemiology

Eastern and Southern Africa regions have the world highest prevalence of HIV at 6.8%, according to the Joint United Nations Programme on HIV/AIDS (UNAIDS) (UNAIDS, 2018b). Southern Africa is considered the epicenter of the disease as the region is home to countries with the highest prevalence of the disease. These two regions are home to more than half (53%) of the 36.9 million people living with HIV globally in 2017. About 45% (about 800,000) of new worldwide infections occurred in Eastern and Southern Africa in 2017 (UNAIDS, 2018b). The young people aged 15 – 24 in these regions are overrepresented in new HIV infections; young people who account for 20.2% of the Eastern and Southern Africa population (United Nations, 2017) contributed to a 36.3% of the new HIV infections in these regions in 2017. The overrepresentation in new HIV infections was particularly higher among young women than young men; AGYW aged 15 – 24 who accounts for 10.1% of the population (United Nations, 2017) contributed to a quarter of the new HIV infections in these regions in 2017. Indeed, the young women were twice as likely to be newly infected with HIV as the young men of the same age group in Eastern and Southern Africa in 2017 (UNAIDS, 2018a). In order to control the epidemic, it is important to reduce the number of new infections. Thus, preventing HIV among young people and particularly among the AGYW is of vital importance to the fight against the disease.

In most of Eastern and Southern Africa, external sources cover the majority funding for HIV prevention, care and treatment. Domestic funding represents 42%. The Global Fund is the second largest external financier of HIV/AIDS programs after the United States President's Emergency Plan for AIDS Relief (PEPFAR) in 2017 (UNAIDS, 2018b). Global Fund share of HIV funding in the region was 11% while that of PEPFAR was 39% in 2017. However, the contribution by external financiers vary by country. For instance, in Mozambique the share of Global Fund and PEPFAR HIV funding was 11.1% and 33.5% in 2015, respectively. In the same year in Malawi, the Global Fund contribution to the HIV funding was 19.7% while that of PEPFAR was 21.7% (UNAIDS, 2017). Earlier in 2015, PEPFAR launched a comprehensive program to prevent HIV among AGYW called Determined, Resilient, Empowered, AIDS-Free, Mentored and Safe (DREAMS) (PEPFAR, 2018).

Objective

The most central question is whether HIV/AIDS prevention among adolescents and youth is a priority in Eastern and Southern Africa, accounting for differences in income levels and epidemiology between the regions and countries.

More specifically, we will:

1. Compare the proportion of Global Fund funding requests dedicated to HIV/AIDS prevention among adolescents and youth by region

2. Determine the correlation between Gross National Income (GNI) per capita and the level and proportion of Global Fund funding requests dedicated to HIV/AIDS prevention among adolescents and youth
3. Determine the correlation between HIV epidemiology and the level and proportion of Global Fund funding requests dedicated to HIV/AIDS prevention among adolescents and youth

In the epidemiology and economic context of Eastern and Southern Africa, it is important to analyze whether HIV prevention among the adolescents and youth is a priority in the funding requests emanating from countries in Eastern and Southern Africa.

Methods

Data sources

The data comes from several sources.

Our main source of information was the adolescents and youth in and out of school module in the funding requests submitted by Eastern and Southern African countries to the Global Fund for the 2017 – 2019 funding cycle. We also obtained the matching funds data from the Global Fund website (Global Fund, 2018a).

The 2017 gross national income (GNI) per capita data came from the World Bank website (World Bank, 2018). Epidemiological data such as the adult HIV prevalence, HIV prevalence among AGYW and HIV incidence per 1000 in 2017 come from UNAIDS (UNAIDS, 2018b).

Participating countries

Originally, we wanted to study the funding requests of all countries in Eastern and Southern Africa for the 2017-2019 allocation period. We obtained the requests for 15 countries. South Africa submitted its request in windows 6 slated on 6th August 2018. Thus, we used its previous grant for the implementation period of 2016 – 2019 exceptionally for two reasons. First, the years 2016-2019 overlap the implementation years 2018 – 2021 of the current grants for other countries in the region. Second the South African previous funding request had components other countries in the region requested for in the implementation period; so it is a good comparison. Burundi, Ethiopia and Lesotho did not have HIV/AIDS prevention program for adolescents and youth as a standalone module but rather embedded in prevention programs for other key and vulnerable populations, thus were excluded. It was not clear when Botswana would submit its request.

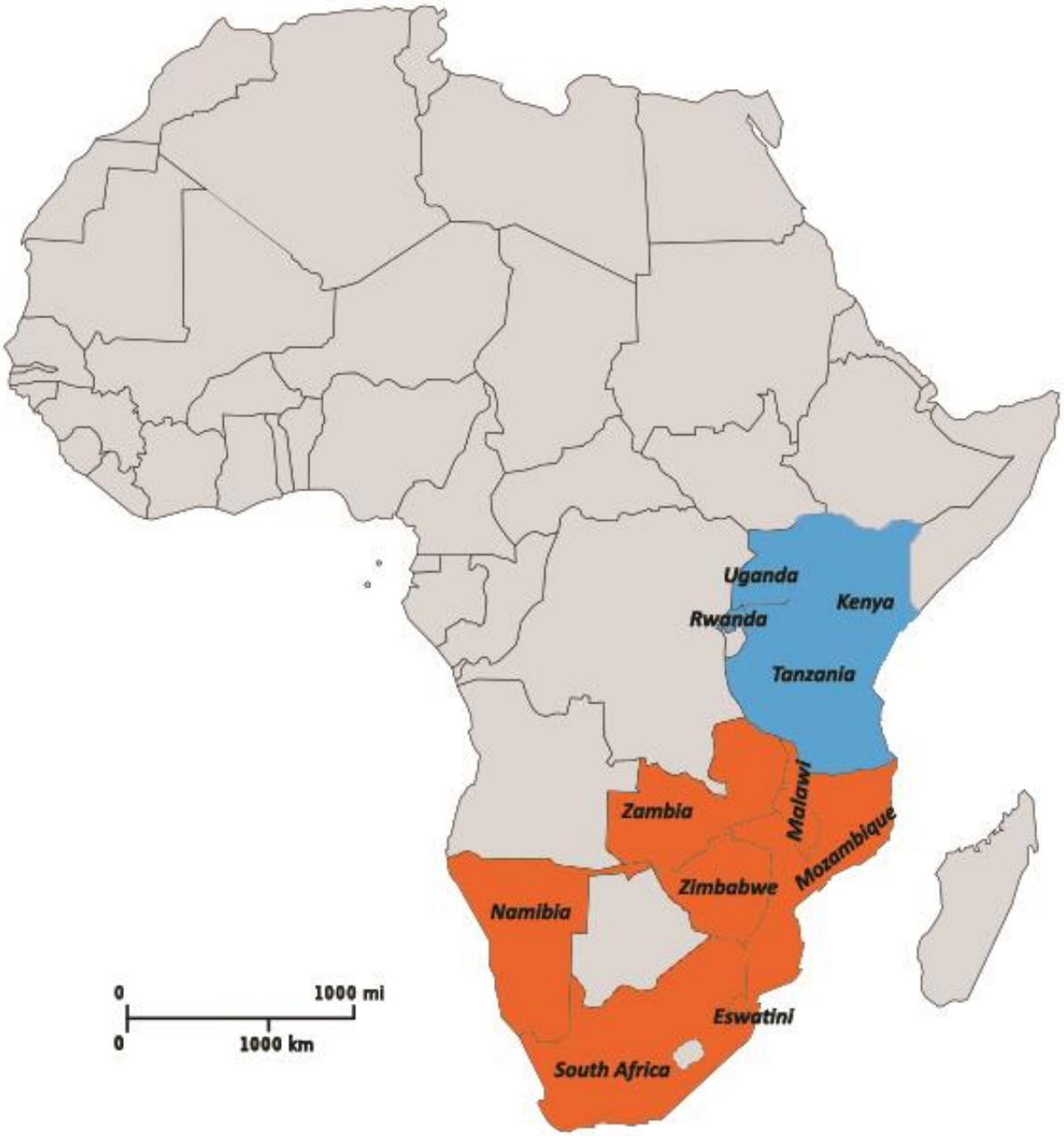

Figure 1: Participating countries

Finally, 11 countries were included in this study: four in Eastern Africa (Kenya, Rwanda, Tanzania and Uganda) and seven in Southern Africa (Eswatini (formerly known as Swaziland), Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe**) (**Figure 1**).** The countries have different implementing periods of the grants (Table 1).

Table 1: Participating countries and their Global Fund implementation period

	Apr 2016	2017	Jan 2018	Oct 2018	Mar 2019	Dec 2020	Sep 2021
Kenya, Malawi, Mozambique,							

Namibia, Rwanda, Tanzania, Uganda, Zambia, Zimbabwe							
Eswatini (former Swaziland),							
South Africa							

Analysis

The total funding for HIV component in a country was derived by adding the matching funds for HIV to the funding requested for HIV component. The funding dedicated for HIV prevention among adolescents and youth was arrived at by adding matching funds for HIV prevention among AGYW to funding request for prevention programs for adolescents and youth in and out of school module. We used Statistical Package for Social Sciences (SPSS®) version 22 to compare regional and national indicators. We tested whether the proportions of the grant dedicated to adolescents and youth was significantly different by region and whether GNI per capita and HIV epidemiological variables were correlated with the level and proportion of funding request targeting HIV/AIDS prevention among adolescents and youth. A p-value of 0.1 (10%) or lower was considered statistically significant.

Findings

Characteristics of the selected countries

The population, GNI per capita, adult HIV prevalence, HIV prevalence among AGYW and HIV incidence per 1000 population in 2017 of the sampled countries are summarized in Table 2.

The population in Eastern and Southern Africa countries varied widely. In Eastern Africa the national population ranged from 12.2 million in Rwanda to over 57 million in Tanzania in 2017 (Table 2). In the same year, the population in Southern Africa ranged from 1.4 million in Eswatini to over 56 million in South Africa. Most of the Eastern Africa countries were low income while most Southern Africa countries were either lower-middle-income or upper-middle-income economies. Among the Eastern Africa countries, Kenya had the highest gross national income (GNI) per capita of US$ 1,440 and is a lower-middle-income country. Other Eastern Africa countries are classified as low income: Tanzania (US$ 905), Rwanda (US$ 720) and Uganda (US$ 600) in 2017 (World Bank, 2018). In the Southern Africa countries, South Africa had the highest GNI per capita (US$ 5,430), followed by Namibia (US$ 4,600) classifying both as upper-middle-income countries. Eswatini and Zambia with GNI per capita of US$ 2,960 and US$ 1,300, respectively, were lower-middle-income countries in 2017. The GNI per capita was US$ 320 in Malawi, US$ 420 in Mozambique and US$ 910 in Zimbabwe and all three were classified as low income countries in 2017.

Generally, countries in Eastern Africa had a lower burden of HIV in 2017 as compared to their Southern Africa counterparts. In Eastern Africa, HIV prevalence among adults ranged from 2.7% in Rwanda to 5.9% in Uganda while in Southern Africa it ranged from 9.6% in Malawi to 27.4% in Eswatini in 2017. In other words, the highest national prevalence among adults in Eastern

Africa is lower than the lowest national prevalence in Southern Africa. Among the Eastern Africa countries, Uganda had the highest HIV prevalence among adults aged 15 to 49 (5.9%) and the highest HIV incidence (1.37 per 1000) in 2017. In the same period, Rwanda had the lowest HIV prevalence among adult aged 15 to 49 (2.7%) and the lowest HIV incidence (0.61 per 1000). Among the Southern Africa countries, Eswatini had the highest HIV prevalence among adults aged 15 to 49 (27.4%) and the highest HIV incidence (8.02 per 1000) in 2017. South Africa had the second highest HIV prevalence among adults (18.8%) and the second highest HIV incidence (5.46 per 1000). But owing to the size of its population, South Africa had the highest number of people living with HIV. Malawi had the lowest HIV prevalence among adults (9.6%) and the lowest HIV incidence (2.39 per 1000) in the region in 2017 (Table 2).

The HIV prevalence among AGYW varied by region in 2017 as expected from the differences in HIV prevalence in the adult population. The Eastern Africa countries had on average lower HIV prevalence among AGYW than those from Southern Africa. Among the four Eastern Africa countries HIV prevalence among AGYW was highest in Uganda (2.9%), followed by Kenya (2.6%), Tanzania (2.1%) and Rwanda (1.1%) (UNAIDS, 2018b). In Southern Africa, HIV prevalence among AGYW was highest in Eswatini (16.7%) followed by South Africa (10.2%), Zimbabwe (6.1%), Zambia (5.7%), Mozambique (5.2%), Namibia (5.0%) and Malawi (4.4%).

Table 2: Population size, economic and epidemiology characteristics of the selected countries in 2017

Country (1)	Population in millions (2)	Classification by income level (3)	GNI per capita (4)	Adult HIV prevalence % (5)	AGYW HIV prevalence % (6)	HIV incidence per 1000 pop per year (7)
Eastern Africa						
Kenya	49.7	Lower-Middle	$1,440.00	4.8	2.6	1.21
Rwanda	12.2	Low	$720.00	2.7	1.1	0.61
Tanzania	57.3	Low	$905.24	4.5	2.1	1.36
Uganda	42.9	Low	$600.00	5.9	2.9	1.37
Southern Africa						
Eswatini	1.4	Lower-Middle	$2,960.00	27.4	16.7	8.02
Malawi	18.6	Low	$320.00	9.6	4.4	2.39
Mozambique	29.7	Low	$420.00	12.5	5.2	4.75
Namibia	2.5	Upper-Middle	$4,600.00	12.1	5.0	3.49
South Africa	56.7	Upper-Middle	$5,430.00	18.8	10.2	5.46
Zambia	17.1	Lower-Middle	$1,300.00	11.5	5.7	3.60
Zimbabwe	17.1	Low	$910.00	13.3	6.1	3.08

Sources: 1 - Population estimates come from United Nations Department of Economic and Social Affairs; 2 - The Gross National Income (GNI) per capita and the classification by income comes from the

World Bank, 2017; 3 – The HIV epidemiological data (HIV prevalence and incidence) comes from UNAIDS website

Funding for the HIV component and prevention programs for adolescents and youth for 2018 – 2021 implementation period

The total HIV component funding request within country allocation to the Global Fund by the ten countries (excluding South Africa) for the 2018 – 2021 implementation period was $2,127,478,146 (Table 3). A total of $55,561,221 of the funds requested was for prevention programs for adolescents and youth, in and out of school module. All the selected countries except Rwanda had been chosen by the Global Fund to receive matching funds. The total matching funds for the HIV component incorporated in grants for the nine countries for the 2018 – 2021 implementation period was $78,282,445 (column 2), to which $45,472,488 (column 4), was added as matching funds for AGYW. The purpose of the matching funds is to catalyze investments in priority areas such as programs aiming to reduce new infections among the AGYW. So countries will get additional funds if they dedicated at least as much as their AGYW matching fund to prevention activities targeting the AGYW

Table 3: HIV component funding and funds dedicated for HIV prevention among adolescents and youth for 2018 – 2021 implementation period in USD

Country (1)	Funding request for HIV component within country allocation (2)	Funding request for Prevention Programs for Adolescents and Youth, in and out of school (3)	Matching Funds for AGYW (4)	HIV matching funds (5)	Percentage of funding request for AGYW in total funding request (6)
Eastern Africa					
Kenya	216,342,474	4,971,640	5,000,000	18,800,000	4.2%
Rwanda	155,622,130	231,422	None	None	-
Tanzania	367,638,373	8,100,000	8,000,000	8,000,000	4.3%
Uganda	255,956,719	5,001,633	5,000,000	9,400,000	3.8%
Southern Africa					
Eswatini	32,152,948	4,025,951	1,500,000	1,500,000	16.4%
Malawi	336,173,928	12,700,000	7,000,000	7,000,000	5.7%
Mozambique	258,501,446	5,801,476	5,990,361	10,690,360	4.4%
Namibia	30,718,152	4,920,411	1,000,000	1,000,000	18.7%
Zambia	128,962,430	6,634,400	4,000,000	4,000,000	8.0%
Zimbabwe	345,409,546	3,174,288	7,982,127	17,892,085	3.1%
Total	2,127,478,146	55,561,221	45,472,488	78,282,445	4.6%

Level and proportion of funding dedicated to HIV/AIDS prevention among adolescents and youth

The total funding for the HIV component taking into account the funding request within country allocation and the matching funds was $2,205,760,591 (Total Column 2 + column 5). Only $101,033,709 (Total Column 3+column 4) of this amount, representing 4.6% of the total funding for the HIV component, was dedicated for prevention programs among adolescents and youth. Namibia had the highest HIV/AIDS prevention funding allocated for adolescents and youth programs (18.7%) while Rwanda had the lowest (0.1%) (Figure 2). The absolute HIV/AIDS prevention for adolescents and youth allocation ranged from $231,422 in Rwanda to $19,700,000 in Malawi.

For comparison purposes, South Africa requested $22,303,186 for adolescents and youth module representing 16.2% of their HIV allocation for the years 2016 – 2019.

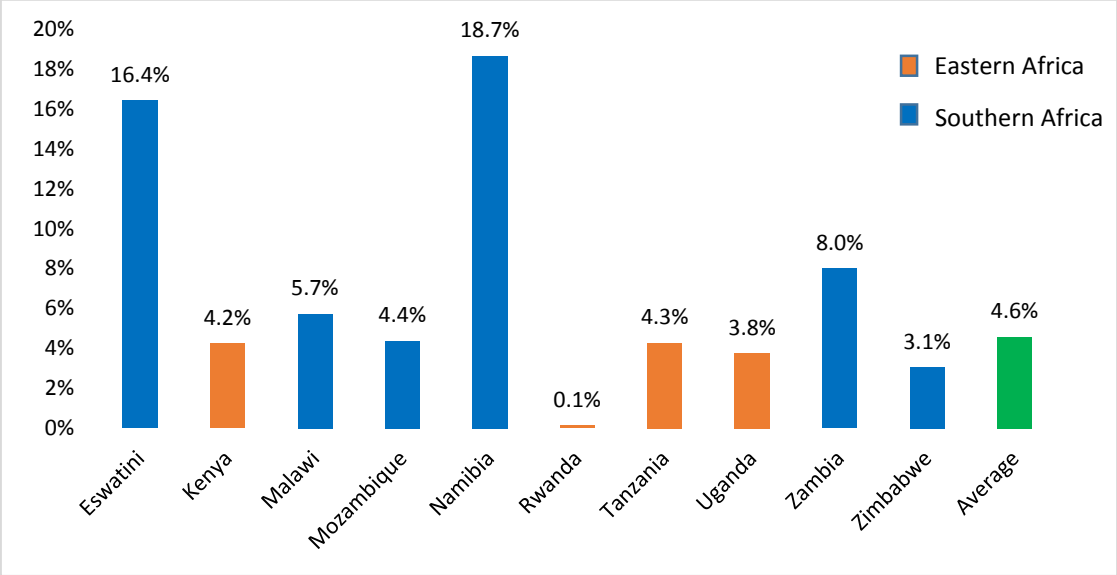

Figure 2: Proportion of HIV/AIDS funding request to Global Fund for adolescents and youth prevention programs (2018 – 2021 implementation period)

Comparing arithmetic average by region, we found that Eastern Africa countries requested a lower proportion of HIV/AIDS funding for the adolescents and youth prevention than countries from Southern Africa (3.1% vs. 10.4%). The Mann-Whitney U test on proportion differences between the two regions yielded statistical significant difference ($U = 25.0$, $p = 0.042$).

Higher income countries dedicated a higher proportion of their funding for prevention among adolescents and youth

The GNI per capita was significantly and positively correlated with the proportion of funding request to the Global Fund dedicated to HIV/AIDS prevention programs among adolescents and youth ($r = 0.899$, $p < 0.001$) (Figure 3). In other words, richer countries devoted a higher proportion of their funding request to prevention programs among adolescents and youth.

However the GNI was not significantly correlated with the absolute funding allocated for HIV/AIDS prevention among adolescents and youth (r = 0.136, p = 0.690).

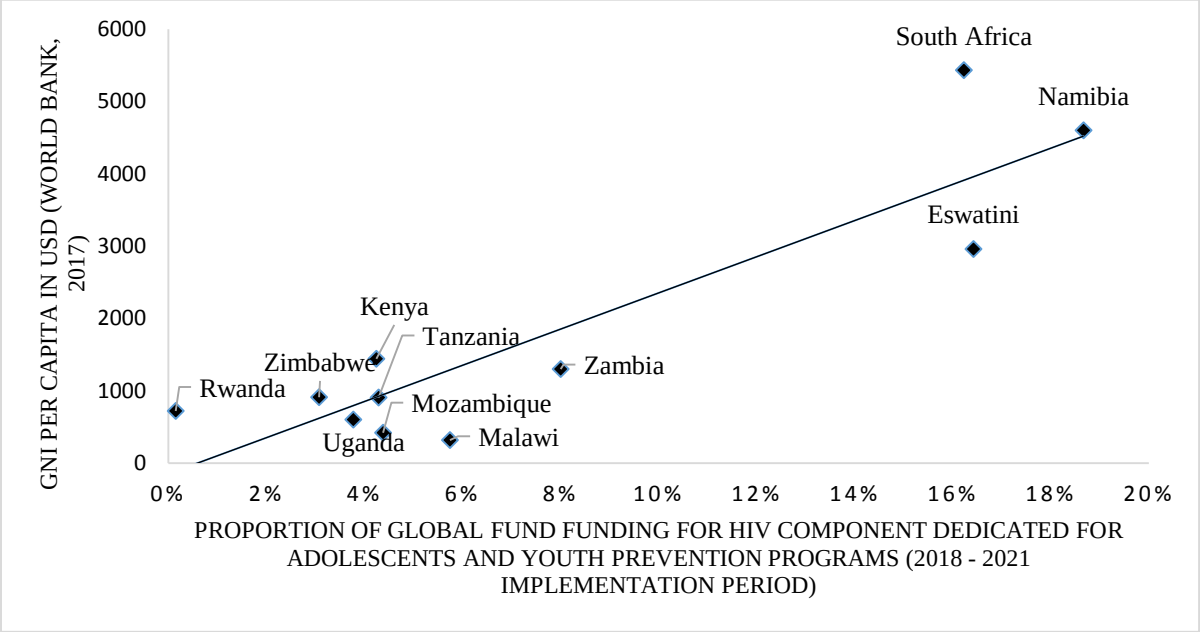

Figure 3: Correlation between the GNI of a country and the proportion of HIV/AIDS funding request to the Global Fund for adolescents and youth prevention programs (2018 – 2021 implementing period)

Countries with higher incidence of HIV dedicated a higher proportion of funding for prevention among adolescents and youth

The proportion of funding allocated for HIV/AIDS prevention programs among adolescents and youth was significantly and positively correlated with HIV incidence per 1000 population in 2017 (r = 0.723, p = 0.012) (Figure 4). In other words, the higher the number of new HIV cases per year, (incidence) in the country, the higher the proportion of funding that this country dedicates to prevention programs among adolescents and youth.

However the absolute funding request for HIV/AIDS prevention programs for adolescents and youth was not significantly correlated with HIV incidence per 1000 population in 2017 (r = 0.1, p = 0.770).

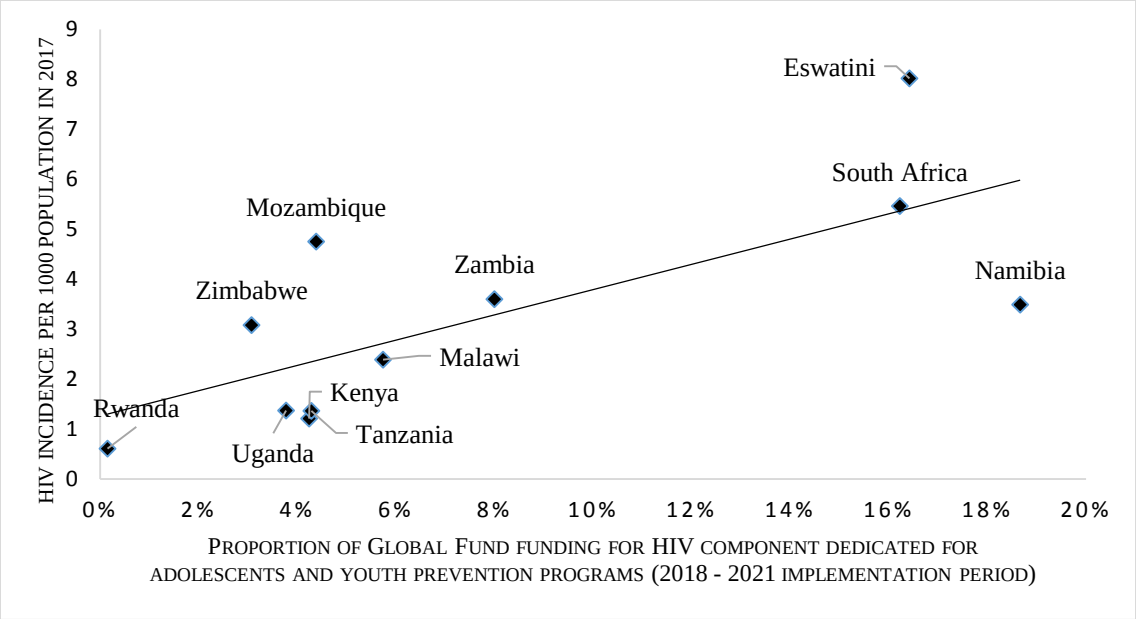

Figure 4: Correlation between HIV incidence per 1000 and the proportion of HIV/AIDS funding request for adolescents and youth prevention programs (2018 – 2021 implementation period)

Countries with higher prevalence of HIV dedicated a higher proportion of funding for prevention among adolescents and youth

The proportion of funding request for HIV/AIDS prevention programs among adolescents and youth was significantly and positively correlated with the AGYW HIV prevalence ($r = 0.705$, $p = 0.015$), (Figure 5). In other words, the higher the number of people living with HIV in the country, (prevalence), the higher the proportion of funding that this country dedicates to prevention programs among adolescents and youth.

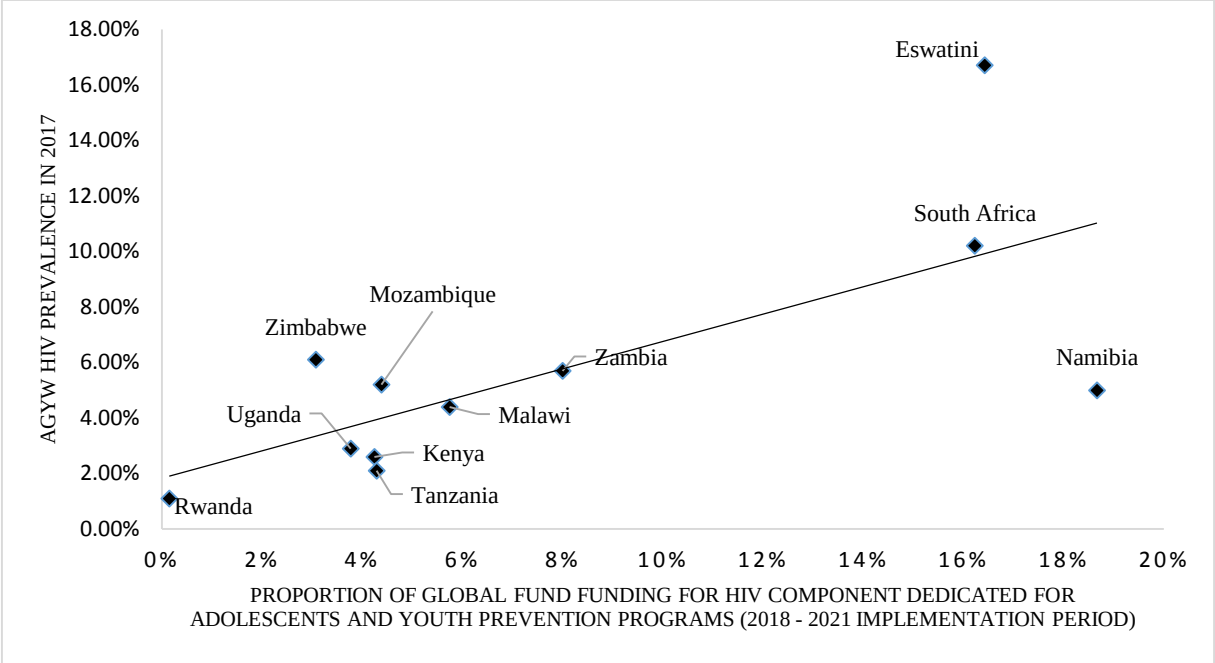

Figure 5: Correlation between AGYW HIV prevalence and the proportion of HIV/AIDS funding request to the Global Fund for adolescents and youth prevention programs (2018 – 2021 implementation period).

Interestingly, two-way correlation tests (incidence and prevalence, GNI and incidence, GNI and prevalence) did not give significant results.

Discussion

We analyzed planned investments in HIV prevention among adolescents and youth in Eastern and Southern Africa countries in relation with the country's GNI, current HIV incidence and prevalence for the 2018 – 2021 implementation period. Such investments are vital to control the epidemic in these two regions with the highest HIV prevalence in the world, and where the new infection rates are disproportionally higher among young people and particularly the AGYW (UNAIDS, 2018a). We found that only 4.6 percent of HIV funding request was dedicated to adolescents and youth HIV prevention. We also found a higher proportion of adolescents and youth funding request was associated with higher GNI per capita, higher HIV incidence and higher HIV prevalence among AGYW.

UNAIDS has recommended that 26% of HIV funding goes to prevention (UNAIDS, 2015). Following that recommendation, we expect that countries in the regions spend on average 9.36% (equal to 26%*36% the proportion of new infections among adolescents and youth) of HIV funds on prevention among adolescents and youth, the cohort with disproportionally high risk new HIV infections (UNAIDS, 2018b). The current proportion of 4.6 percent is about half the target in Eastern and Southern Africa.

It is noteworthy that all the countries included in this study receive PEPFAR funding for HIV; all but two, Rwanda and Namibia, also implement the PEPFAR DREAMS the flagship prevention

program for AGYW mentioned in the introduction. Thus, it is unlikely that PEPFAR program has a direct negative effect on the HIV prevention among adolescents and youth using Global fund investments.

Generally, the Eastern Africa countries allocate a lower proportion of the Global Fund HIV/AIDS prevention to adolescents and youth programs as compared to Southern Africa countries. This can be partly explained by the smaller size of the economies and the relatively "smaller" epidemics in these countries.

In terms of economies, countries with higher GNI per capita allocated a higher proportion of their funding request to prevention among adolescents and youth. More of the selected Eastern Africa countries had low-income status as compared with those from Southern Africa. HIV/AIDS programs in low income countries tend to heavily depend on external financing (Hecht et al., 2010; Resch, Ryckman, & Hecht, 2015). This is more so in high-burden, low-income (HBLI) countries that rely on external financing including grants from PEPFAR and Global Fund for their HIV programs (Resch et al., 2015). On the other hand, the high-burden, middle-income (HBMI) countries have the capacity to cover HIV expenditure from domestic sources. For instance, most of HIV programs in Namibia and South Africa (Upper-Middle-Income economies) are funded from domestic sources (Resch et al., 2015). Through its budget, Namibia allocates more than one percent of its gross domestic product (GDP) to HIV programs (Resch et al., 2015). We speculate that high income countries use domestic resources to fund HIV treatment thereby leaving the prevention with huge funding from international financing.

In terms of HIV epidemiology, HIV incidence and prevalence among AGYW was positively correlated with the proportion of Global Fund funding request for HIV/AIDS prevention programs among adolescents and youth. Almost similar observations were reported in a study conducted in United States, which indicated that HIV prevention resource allocation was highly correlated with prevalence rates (Oglesby, Smith, & Alemagno, 2014). It is possible that countries with higher prevalence feel more pressure to end the epidemics. This situation may explain the regional differences in terms of adolescents and youth funding allocation. Since the Southern Africa countries had higher HIV incidence and prevalence among the AGYW as compared to their Eastern Africa counterparts, it is expected that they allocate more resources to this vulnerable group.

It is important to point out that HIV prevalence is higher in Southern Africa but the region also has more middle income countries than the Eastern Africa. These dual increases (higher prevalence and higher income) may be potential confounders in the positive correlation between GNI per capita and the proportion of Global Fund funding request for HIV/AIDS prevention programs among adolescents and youth. A regression analysis could have solved this problem but the small sample size precludes such analysis.

This study did not analyze the specific prevention activities targeting the AGYW or their relevance, which is beyond the scope of this work. Also we did not factor in the multi-country approaches and strategic initiatives funds as they are not funded through country grants.

Conclusion

The Eastern and Southern Africa countries which applied for a module for adolescents and youth in the 2017-2019 allocation period, dedicated on average 4.6% of Global Fund funding for HIV component to prevention among adolescents and youth. This proportion was rather small in view of the over-representation of this segment of the population in the new infection rates. A stronger emphasis on this group is needed to end the epidemics of HIV/AIDS. Other than the incentive of the matching funds, there is need for the Global Fund to explore other ways to incentivize higher investments in adolescents and youth and particularly among AGYW, including encouraging a minimum proportion a country should allocate to prevention among this segment of the population.

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