POPULATION ESTIMATES OF HIV RISK FACTORS TO INFORM HIV PREVENTION PROGRAMMING FOR ADOLESCENT GIRLS AND YOUNG WOMEN

Ashleigh L. Howard,
U.S. Centers for Disease Control and Prevention (CDC), Center for Global Health, Atlanta, Georgia.

Laura Chiang,
CDC, National Center for Injury Prevention and Control, Atlanta, Georgia.

Viani Picchetti,
CDC, National Center for Injury Prevention and Control, Atlanta, Georgia.

Liping Zhu,
CDC, National Center for Injury Prevention and Control, Atlanta, Georgia.

Jennifer Hegle,
U.S. Centers for Disease Control and Prevention (CDC), Center for Global Health, Atlanta, Georgia.

Pragna Patel,
U.S. Centers for Disease Control and Prevention (CDC), Center for Global Health, Atlanta, Georgia.

Janet Saul,
U.S. Centers for Disease Control and Prevention (CDC), Center for Global Health, Atlanta, Georgia.

Lydia Wasula,
Uganda Ministry of Gender, Labor and Social Development, Kampala, Uganda.

Sophie Nantume,
CDC, Uganda Country Office, Entebbe, Uganda.

Rachel Coomer,
CDC, Namibia Country Office, Windhoek, Namibia.

Rahimisa Kamuingona,
Namibia Ministry of Gender Equality, Poverty Eradication and Social Services, Windhoek, Namibia.

Rose Patricia Oluoch,
USAID, Kenya Country Office, Nairobi, Kenya.

Address correspondence to Greta M. Massetti, U.S. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control,1600 Clifton Rd. NE, Atlanta, GA 30329-4018. ghz6@cdc.gov.

Tendayi Mharadze,

CDC, Zimbabwe Country Office, Harare, Zimbabwe.

Meghan Duffy,

CDC, Mozambique Country Office, Maputo, Mozambique.

Caroline A. Kambona,

CDC, Kenya Country Office, Nairobi, Kenya.

Puleng Ramphalla,

CDC, Lesotho Country Office, Maseru, Lesotho.; CDC, Côte d'Ivoire Country Office, Abidjan, Côte d'Ivoire.

Kamagate Maman Fathim, **Greta M. Massetti**

CDC, National Center for Injury Prevention and Control, Atlanta, Georgia.

Abstract

Violence Against Children and Youth Survey (VACS) data from seven countries were analyzed to estimate population-level eligibility for the President's Emergency Plan for AIDS Relief (PEPFAR) Determined, Resilient, Empowered, AIDS-Free, Mentored, and Safe (DREAMS) HIV prevention program for adolescent girls and young women (AGYW). The prevalence of overall eligibility and individual risk factors, including experiences of violence, social, and behavioral risks differ across countries and age groups. A large proportion of AGYW across all countries and age groups examined have at least one risk factor making them eligible for DREAMS. Experiencing multiple risks is also common, suggesting that researchers and programs could work together to identify combinations of risk factors that put AGYW at greatest risk of HIV acquisition, or that explain most new HIV infections, to more precisely target the most vulnerable AGYW. The VACS provides important data for such analyses to refine DREAMS and other youth programming.

Keywords

adolescent girls; young women; HIV prevention; HIV risk factors; HIV vulnerability; DREAMS (Determined, Resilient, Empowered, AIDS-Free, Mentored, and Safe); Violence Against Children Surveys

INTRODUCTION

Sub-Saharan Africa remains the epicenter of the HIV pandemic, accounting for 59% of new infections in 2021 (UNAIDS, 2022a). In sub-Saharan Africa, 63% of new HIV infections occur among girls and women, demonstrating an overall disparity in risk compared to males (UNAIDS, 2022a). The difference is even more striking for 15–19-year-old youth, given that AGYW accounted for six in seven new HIV infections (UNAIDS, 2022b). While there have been significant reductions in HIV prevalence and incidence in the general population as well as achieving the 90/90/90 goals (UNAIDS, 2014, 2015), targeted strategies for HIV prevention among AGYW are essential to control epidemics (Brown et al., 2018).

The U.S. government's President's Emergency Plan for AIDS Relief's (PEPFAR) Determined, Resilient, Empowered, AIDS-Free, Mentored, and Safe (DREAMS) program addresses the disproportionate incidence of HIV infection among AGYW through evidence-based HIV prevention programming targeting the biological, social, structural, and environmental factors that increase risk of future HIV infection among AGYW (Saul et al., 2018). The DREAMS approach involves layered interventions, including HIV and violence prevention programming, postviolence care services, HIV testing, preexposure prophylaxis, sexual and reproductive health services, parenting/caregiver support, community norms change interventions, and male partner characterization. The program also aims to address economic disparities that predispose AGYW to risk of HIV infection through socioeconomic strengthening approaches that combine financial literacy, entrepreneurship, vocational training, opportunities for internships, and start-up support for entrepreneur activities to vulnerable AGYW. These interventions have been shown to reduce HIV risk behaviors, unwanted pregnancies, exposure to violence, and HIV and violence-related outcomes, such as poor mental health. An analysis in Lesotho found a greater reduction in new HIV diagnoses in antenatal care clinics in DREAMS districts compared to non-DREAMS districts, demonstrating the potential impact of DREAMS (Pelletier et al., 2022). DREAMS targets a key demographic with an aim to improve health equity in HIV service provision and epidemic control through prevention programming focused on the unique structural, cultural, and biological risks that AGYW face, paired with care and treatment for those diagnosed with HIV at intake or seroconvert (Saul et al., 2018).

PEPFAR implements DREAMS in geographic areas in 16 countries that have a high burden of HIV.[1] Participants receive a standard package of primary interventions and services as well as needs-based supplemental services. PEPFAR country programs tailor DREAMS implementation, including the geographic locations in which DREAMS is offered, to address the unique HIV epidemiology among AGYW in the specific country context (PEPFAR Solutions, 2021). In all countries, enrollment requires a screening assessment, based on standardized criteria empirically associated with risk of HIV infection, to determine DREAMS eligibility. In working to reduce risk factors, DREAMS aims to decrease vulnerability to HIV among program participants. DREAMS eligibility criteria include early pregnancy (Christofides et al., 2014); sexual, physical, and emotional violence (Li et al., 2014); sexual risk behaviors (early sexual debut, multiple sex partners, sexually transmitted infections, transactional sex, and no or irregular condom use); and other social risk factors for HIV, including alcohol misuse, being out of school, and orphanhood (Balkus et al., 2016; Santelli et al., 2013) (Table 1). AGYW living with HIV are not excluded from participation in DREAMS; however, those with an unknown status are offered HIV testing and enrolled in care and treatment as needed.

The purpose of the current study was to assess population estimates of DREAMS eligibility criteria using Violence Against Children and Youth Survey (VACS) data from seven sub-Saharan African countries. Although no previous work has examined population estimates of DREAMS program eligibility across multiple countries, such data could provide useful

[1.]Botswana, Côte d'Ivoire, Eswatini, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Sudan, South Africa, Tanzania, Uganda, Zambia, Zimbabwe, and Haiti.

information for program planning to guide efforts to reach the AGYW most at risk for HIV. First, estimates of the presence and prevalence of risk factors highlight which factors are the most substantial drivers of vulnerability, both within a country and at the regional level, to inform prioritization of DREAMS and similar HIV prevention programs among AGYW programming and recruitment efforts. Second, program eligibility estimates can ensure proper alignment and allocation of staffing and other resources toward specific HIV prevention interventions. Third, estimates can inform efforts to tailor interventions to the specific needs of the population a program is intended to serve. For example, a country with a high prevalence of early pregnancy might warrant different prioritization of programming than a country with a high prevalence of alcohol misuse and low rates of early pregnancy. Finally, eligibility estimates can guide outreach and recruitment efforts to ensure efficient use of program resources to reach the eligible population and to promote equity in reach, access, and uptake of services.

METHODS

This is a descriptive analysis of population-level DREAMS eligibility among AGYW in seven countries using VACS data from Uganda (2015), Zimbabwe (2017), Côte d'Ivoire (2018), Lesotho (2018), Kenya (2019), Namibia (2019), and Mozambique (2019). VACS are interviewer-administered cross-sectional household cluster surveys among youth aged 13–24 years old that are conducted through the leadership of national government institutions with technical assistance from the U.S. Centers for Disease Control and Prevention (CDC), financial support from PEPFAR, and in partnership with UNICEF and multisectoral committees with multiple ministries and key stakeholders. All VACS in this analysis included HIV testing except Uganda, where HIV status was measured only through self-disclosure on the questionnaire. For the six countries that included HIV testing, the age of testing differed based on the national policy at the time of the survey defining when a young person can receive results confidentially.[2] In each VACS, a three-stage survey sample design was used. The first stage of sampling was selection of the enumeration areas (EAs) using population proportionate to size according to the national frame. The second stage was selection of households within each enumeration area. The third stage consisted of random selection of one eligible household member for survey participation (Nguyen et al., 2019).

In adherence to best practices in protecting participants who may disclose violence in the field (CDC, 2017), a split-sample approach was used, and males and females were interviewed in different EAs. Participants who had experienced recent violence or exploitation received referrals for psychosocial support. Individuals who had tested positive for HIV also received direct referrals to HIV care and treatment services. Each VACS protocol was approved by the CDC Institutional Review Board and one or more country-level ethics committees.

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[2] Zimbabwe age of HIV testing 16–24 years; Côte d'Ivoire age of HIV testing 16–24-years; Lesotho age of HV testing 13–24 years; Kenya age of HIV testing 15–24 years; Namibia age of HIV testing 14–24-years; Mozambique age of HIV testing 18–24 years.

VARIABLES

VACS variables were analyzed to represent, as closely as possible, PEPFAR DREAMS eligibility criteria. Table 1 provides the definitions of DREAMS eligibility in the PEPFAR guidance alongside the definitions of the exact VACS indicators created for each age band, based on the VACS questionnaire. DREAMS eligibility criteria differ across age bands (10–14 years; 15–19 years; 20–24 years), reflecting changing HIV risk factors throughout development in adolescence and into young adulthood. While the DREAMS program enrolls AGYW 10 years of age and older, the VACS surveys' lower age limit is 13 years, and, as a result, we are only able to report on those ages 13–14 years old for the youngest DREAMS age band.

STATISTICAL ANALYSIS

Descriptive analyses among HIV-negative AGYW ages 13–24 years assessed prevalence of DREAMS eligibility criteria. Given the DREAMS program goal of reducing new HIV infections, data analyses were limited to AGYW who were not living with HIV or whose HIV status was unknown (i.e., did not know or refused to disclose their status and refused voluntary HIV testing at the time of the survey). AGYW whose status was unknown were included in the analyses because both HIV prevalence for this age group and the number of AGYW with unknown status were low in the countries studied. Using this approach, we avoided excluding AGYW who were never tested or were afraid to be tested and who may face unique risk factors for HIV infection. We estimated that less than 0.05% of AGYW in our sample would have been incorrectly categorized as HIV-negative/unknown status when they were living with HIV. Thus, including AGYW with unknown status in the analysis posed minimal risk for potential miscategorization of a small number of HIV-positive AGYW in the sample. For simplicity, we refer to the analytic sample as "HIV-negative AGYW" throughout the text. Sample weights were calculated after data collection (Nguyen et al., 2019), including calculation of the base weight for each respondent, adjusting for nonresponse in the sample and calibrating the adjusted weights to the national population totals. AGYW living with HIV (based on self-report or voluntary HIV testing at the time of the survey) and boys and young men were excluded. The final analytic samples represented AGYW in Uganda (3,118), Zimbabwe (7,664), Côte d'Ivoire (1,195), Lesotho (7,101), Kenya (1,330), Namibia (4,036), and Mozambique (2,032). Participants were considered eligible for DREAMS if they met at least one DREAMS criterion for their age band, based on responses to the VACS questionnaire (Table 1). Nationally, the weighted prevalence of meeting at least one criterion was estimated for AGYW ages 13–14, 15–19, and 20–24 years. The weighted prevalence of meeting two or more criteria for DREAMS eligibility was also estimated for AGYW in each age group to examine the prevalence of exposure to multiple risk factors for HIV acquisition. In addition, the weighted prevalence of individual DREAMS eligibility criteria for each age band was estimated, along with 95% confidence intervals (CIs). All analyses were conducted using SAS (version 9.4; SAS Institute), accounting for the complex survey design. Survey weights were applied to each country's VACS data to yield nationally representative estimates for each individual country. When calculating the national estimates for most measures, missing values were excluded from the analysis. Due to skip patterns and administration of the survey electronically, there are minimal missing data.

RESULTS

Table 2 provides prevalence estimates and 95% CIs by country for each age group for overall DREAMS eligibility as well as for each of the DREAMS criteria.

PREVALENCE OF DREAMS ELIGIBILITY

In Uganda, more than four in five girls ages 13–14 years (81.4%) and 15–19 years (74.5%), and more than three in four (76.6%) young women ages 20–24 years were eligible for DREAMS (i.e., met at least one eligibility criterion for their age group). In Côte d'Ivoire, about three in four girls ages 13–14 years (75.4%) and 15–19 years (73.9%) and more than two in three (64.4%) girls ages 20–24 years were eligible for DREAMS. In Lesotho, more than half (61.0%) of girls ages 13–14 years, more than two thirds of girls ages 15–19 years (64.2%) and fewer than half (46.3%) of young women ages 20–24 years were eligible for DREAMS. In Kenya, more than two thirds of girls ages 13–14 years (65.0%) and half of girls ages 15–19 years (52.1%) and 45.0% of young women ages 20–24 years were eligible for DREAMS. In Namibia, more than two in three girls ages 13–14 (70.6%) and half of girls ages 15–19 years (53.4%) and just under two in three (61.3%) young women ages 20–24 years were eligible. In Mozambique, more than two in three girls ages 13–14 years (72.0%), more than three in four girls ages 15–19 years (78.1%), and under half of young women ages 20–24 years (43.7%) were eligible for DREAMS. DREAMS eligibility in Zimbabwe was 47.0% for girls ages 13–14 years, 57.7% for girls ages 15–19 years, and 28.1% for young women ages 20–24 years. Figure 1 depicts prevalence of meeting one or more DREAMS eligibility criteria by country and age group.

PREVALENCE OF MEETING TWO OR MORE ELIGIBILITY CRITERIA

In Côte d'Ivoire, the prevalence of two or more risk factors for DREAMS eligibility was 43.7% for 13–14-year-olds, 44.4% for 15–19-year-olds, and 33.5% for 20–24-year-old AGYW. Similarly, in Uganda, 43.4% of 13–14-year-olds, 38.1% of 15–19-year-olds, and 34.1% of 20–24-year-olds met at least two criteria for DREAMS eligibility. Among 13–14-year-old girls in Mozambique, 34.2% of girls ages 13–14, 44.5% of girls ages 15–19, and 14.1% of young women ages 20–24 met two or more DREAMS eligibility criteria. In Namibia, 26.8% of girls ages 13–14 years, 23.1% of girls ages 15–19 years, and 20.8% of young women ages 20–24 years met at least two eligibility criteria. In Lesotho, one in five girls (22.5%) ages 13–14, one in four girls ages 15–19 (28.2%), and about than one in six (17.5%) young women ages 20–24 met two or more DREAMS eligibility criteria. In Kenya, 25.0% of 13–14-year-olds, 19.2% of 15–19-year-olds, and 15.1% of 20–24-year-olds had two more risk factors. In Zimbabwe, 11.3% of 13–14-year-olds, 23.0% of 15–19-year-olds, and 6.4% of 20–24-year-olds met two or more criteria for DREAMS eligibility. Figure 2 reflects prevalence of meeting two or more DREAMS eligibility criteria by country and age group.

REVALENCE OF INDIVIDUAL ELIGIBILITY CRITERIA BY AGE GROUP

Among adolescent girls ages 13–14 years, physical or emotional violence in the past 12 months was the most common individual eligibility criterion met in Uganda (57.4%), Côte d'Ivoire (57.3%), Kenya (57.0%), Namibia (49.5%), Lesotho (36.1%), and Mozambique

(32.9%), while orphanhood was the most common criterion in Zimbabwe (26.4%). Orphanhood was also common in this age group in all other countries: Lesotho (36.0%), Mozambique (24.3%), Uganda (21.3%), Namibia (18.8%), Kenya (15.1%), and Côte d'Ivoire (11.5%). In Uganda, nearly a fourth of girls ages 13–14 years (23.2%) had experienced sexual violence in their lifetime. The prevalence of sexual violence was greater than 10% in Côte d'Ivoire (18.4%), Mozambique (15.2%), Kenya (14.7%), and Namibia (10.6%). In Zimbabwe 3.8% and in Lesotho 5.3% of 13–14-year-old girls had experienced sexual violence. Alcohol use was also common in this age group in Namibia (20.6%), Uganda (16.5%), Côte d'Ivoire (15.0%), and Lesotho (7.2%). Early sexual debut was common in Mozambique, with about one in five girls ages 13–14 years (20.5%) having ever had sex. Being out of school was also a common criterion in Mozambique (28.2%), Côte d'Ivoire (21.0%), Uganda (13.8%), and Zimbabwe (11.0%).

In Lesotho, being orphaned in childhood was the most commonly met DREAMS eligibility criterion among AGYW ages 15–19 years (44.4%) as it was in Zimbabwe (32.1%) and Namibia (22.9%). Orphanhood was also common among AGYW ages 15–19 in Mozambique (25.3%), Côte d'Ivoire (23.7%), Uganda (21.9 %), and Kenya (18.3%). Among adolescent girls ages 15–19 years, being out of school was common in Mozambique (31.0%), Zimbabwe (18.9%), Uganda (23.5%), Côte d'Ivoire (13.7%), and Lesotho (12.8%). Among those who ever had sex, no or irregular condom use was prevalent in all countries: Uganda (58.2%), Côte d'Ivoire (55.0%), Namibia (46.6%), Kenya (41.3%), Mozambique (27.5%), Lesotho (27.4%), and Zimbabwe (21.9%). Sexual violence was the most frequent contributor to DREAMS eligibility in this age group in Uganda (46.9%). Sexual violence was also common in 15–19-year-old AGYW in Côte d'Ivoire (29.1%), Kenya (25.8%), Namibia (19.3%), Lesotho (18.2%), and Zimbabwe (12.1%). The prevalence of pregnancy varied across countries in this age band from 14.9% in Lesotho to 43.4% in Mozambique. Alcohol misuse ranged from 2.3% in Lesotho to 11.6% in Côte d'Ivoire and represented a less common criterion across countries.

Among young women ages 20–24 years, sexual violence was a common contributor to DREAMS eligibility in all countries: Uganda (50.4%), Côte d'Ivoire (41.1%), Kenya (29.5%), Lesotho (25.3%), Namibia (24.6%), Mozambique (23.1%), and Zimbabwe (16.2%). No or irregular condom use was also common among those who had ever had sex in all countries with 33.8% in Côte d'Ivoire, 52.3% in Namibia, 37.4% in Uganda, 29.1% in Kenya, 25.3% in Mozambique, 24.6% in Lesotho, and 13.5% in Zimbabwe. Alcohol misuse was also common in Côte d'Ivoire (20.2%) and Namibia (18.2%).

DISCUSSION

Overall, the percentage of HIV-negative AGYW in each country who met eligibility criteria for DREAMS is very high, ranging from 47.0% in Zimbabwe to 81.4% in Uganda among 13–14-year-olds, from 52.1% in Kenya to 78.1% in Mozambique among 15–19-year-olds, and from 28.1% in Zimbabwe to 76.6% in Uganda among 20–24-year-olds. This high prevalence of DREAMS eligibility suggests that PEPFAR overall, DREAMS country programs individually, and other key stakeholders such as country government programs providing HIV prevention programming for AGYW may consider data-driven approaches

to determine eligibility targets based on factors that identify the populations and groups most vulnerable to new HIV infection among AGYW who are socially vulnerable. At the same time, programs may consider if, when, and where population-level prevalence of HIV risk factors indicate that community-level interventions are needed to address widespread social and economic vulnerability and harmful norms to complement the current DREAMS package of interventions to fully address AGYW risk.

The prevalence of having two or more risk factors ranged from 11.3% among girls ages 13–14 years in Zimbabwe to 43.7% in Côte d'Ivoire. Among girls ages 15–19 years, having two or more risk factors ranged from 19.2% in Kenya to 44.5% in Mozambique and from 6.4% in Zimbabwe to 34.1% in Uganda for young women ages 20–24 years. That a substantial percentage of AGYW in all countries and across all age groups have multiple HIV risk factors emphasizes the need for the multicomponent interventions targeting multiple risk factors offered in DREAMS. Furthermore, it highlights the need for the incorporation of HIV prevention interventions into sustainable national initiatives within health, child protection, and education systems. The high prevalence of DREAMS eligibility also suggests the potential need for empirical approaches to assess patterns of co-occurrence of risk factors and HIV acquisition among AGYW while taking into consideration the differences in actual risk that AGYW with one risk factor may face in a locality with high HIV prevalence and low viral load suppression compared with AGYW with multiple risk factors in areas of lower HIV burden.

Experiencing physical or emotional violence in the past year represented the most common reason for DREAMS eligibility for girls ages 13–14 years in all countries examined except Zimbabwe. Physical and emotional violence is associated with negative mental and physical health impacts, including increased risk for HIV (Leddy et al., 2022; Shamu et al., 2019). Given the high prevalence of physical and emotional violence and high endorsement of norms and attitudes supportive of violence (Ministry of Women, Family and Children of Côte d'Ivoire et al., 2019; Ministry of Labour and Social Protection of Kenya, 2019; Ministry of Social Development of Lesotho et al., 2020), HIV prevention efforts for AGYW should consider expanding interventions to address structural, economic, and social drivers of violence at the community and societal levels. This approach may in turn result in reduced risk for HIV and create conditions that enable the DREAMS program to more effectively reach AGYW at the highest risk of HIV.

Lifetime sexual violence was the most common DREAMS eligibility criterion among AGYW ages 20–24 in Uganda (50.4%), Zimbabwe, Côte d'Ivoire, Lesotho, and Kenya while it was the second most common (after no or irregular condom use) in Namibia and Mozambique. Sexual violence was also common in the younger age bands (23.2% among 13–14-year-olds and 46.9% among 15–19-year-olds in Uganda). Unsurprisingly, lifetime exposure to sexual violence increased with age in all countries. Exposure to physical or emotional violence in the past 12 months, on the other hand, generally decreased with age, likely due to decreased physical punishment by parents, caregivers and teachers as well as decreased exposure to violence from peers. Although 15–24-year-old AGYW are not eligible for DREAMS due to experiences of emotional and physical violence, exposure remains as high as 50.7% among 15–19-year-olds and 49.2% among 20–24-year-olds

in Kenya. Screening young women for recent sexual violence (to gauge ongoing direct risk vs. historical exposure and indirect risk) as well as screening for intimate partner physical and emotional violence could be worth considering given (a) the persistent high prevalence of emotional and physical violence in the past month among 15–24-year-old AGYW; (b) that population-level HIV incidence for girls and women generally increases during adolescence, peaking between the ages of 20 and 24 years (Birdthistle et al., 2019); (c) known associations between intimate partner violence and low condom use and HIV acquisition; and (d) the demonstrable impact of DREAMS gender-based violence programming on lowering HIV risks, including sexual violence, transactional sex, and condom use (Mathur et al., 2022).

No or irregular condom use was also a commonly met DREAMS eligibility criterion in all countries examined in all age groups among those who had ever had sex. DREAMS program planning could consider no or irregular condom use in combination with other sexual risk behaviors among adult AGYW and seek to understand the ecological factors that impact condom use. Considering that the prevalence of no or irregular condom use (as high as 58.2% among 15–19-year-old AGYW in Uganda) far outpaces the prevalence of multiple sexual partners in the past 12 months, it is reasonable to assume that most adult AGYW who report low or irregular condom use are in a monogamous relationship and therefore at low risk of HIV compared to those who report no or irregular condom use and multiple sexual partners. In the oldest age group, young women, whether married or not, may also be trying to get pregnant (UNICEF, 2021). Following that logic, and absent any transactional sexual relationship, low or no condom use may not be a strong marker of HIV risk in adult AGYW and may therefore not represent a strong stand-alone DREAMS criterion. Thus, it may be worth considering an approach that accounts for a combination of eligibility criteria, considering no or irregular condom use in the context of the number of recent sexual partners and whether any of the sexual relationships were transactional in nature. It is worth noting, for those AGYW who are having riskier sex (i.e., nonmonogamous sex without a condom), that condom use has been found to increase among DREAMS participants with school support and complementary programming with male partners (Mathur et al., 2022). Past research has also highlighted the interconnectedness of multiple risk factors, including findings that girls' experiences of early sex and reduced agency to negotiate condom use increased with their vulnerability scores (Underwood & Schwandt, 2016).

While the current data show strong trends across countries and age groups, they also highlight differences between countries that suggest tailoring country programs' intervention offerings and targets toward the most contextually important risk factors. For example, more than one in five girls ages 13–14 years in Mozambique had ever had sex. The prevalence of early sexual debut in Mozambique is nearly twice that of the next highest country, and the prevalence of ever had sex rises to more than two in three girls ages 15–19 years. The prevalence of early pregnancy is also high in Mozambique, where 3.5% of girls ages 13–14 had ever been pregnant, compared to all other countries examined in which 1% or fewer had ever been pregnant among the youngest AGYW. The Mozambique program could use these data to help target the youngest girls who have already experienced or are at risk of early sexual debut and pregnancy. In the same way, programs in Côte d'Ivoire and Namibia may use these data to ensure that programs are addressing the high prevalence of alcohol

misuse among AGYW, while programs in contexts of lower occurrence of alcohol misuse may focus on other risk factors.

This study focuses on DREAMS eligibility criteria at the national level across seven countries to provide a high-level perspective on AGYW risk. However, VACS sample design has included oversampling of AGYW in HIV high-burden, DREAMS priority areas in several countries, including in five of the seven countries in this analysis. A supplementary table, Table 3, is included to provide overall DREAMS eligibility in the DREAMS subregions for the five countries with subnational sampling (Uganda, Zimbabwe, Lesotho, Namibia, and Mozambique). As an example, in Zimbabwe, the overall DREAMS eligibility at the national level is 28.1% for 20–24-year-old AGYW whereas the eligibility ranges from 17.2% in Chipinge to 40.4% in Bulawayo. Future studies could focus on country-specific examination of DREAMS eligibility by subnational strata, taking into consideration the HIV burden, including population estimates of HIV prevalence, incidence, and viral load suppression, and considering which HIV risk factors may put AGYW at greatest risk in that context. Optimal programming may be different in rural Chipinge, Zimbabwe, compared with urban Bulawayo based on the specific risk factors that put AGYW at risk of HIV in the local context.

While these data provide new insights into the population-level drivers of DREAMS eligibility and HIV risk, additional research is needed to inform identification of specific combinations of risk factors. Future studies could leverage person-driven approaches such as Latent Class Analysis (Lanza et al., 2013) to identify patterns of heterogeneity within and between groups of AGYW. Improved data on the complex interplay among risk factors for HIV acquisition in AGYW, including the frequency, severity, and co-occurrence of risks as well as the cultural and geographic context in which AGYW live, might also allow for better prediction and prevention of potential future HIV acquisition.

Some DREAMS programs have already incorporated strategic approaches to assess AGYW's screening results for eligibility. In Malawi, for example, AGYW are automatically eligible if they have certain specific risk factors (e.g., 10–14-year-olds who have ever had sex, experienced sexual violence, or contracted an STI), while for other risk factors eligibility is based on an overall weighted score rather than on a single risk factor. Programs interested in a weighted screening approach could consider using VACS data to determine priority risk factors for their country and score those accordingly. Similarly, in Uganda, recognizing the high prevalence of emotional violence, DREAMS-implementing partners suggested further screening to identify high-risk impacts (e.g., suicidal ideation, self-harm behaviors, and poor mental health) of emotional violence on AGYW. VACS data could be assessed to determine the prevalence of such nuanced risk factors and support programs to inform more responsive screening criteria. These data indicate that such adaptations may be increasingly important as data provide further evidence of trends and differences in vulnerability across diverse contexts. Previous work has highlighted the successes and challenges in screening for vulnerability among AGYW and can inform development and refinement of such tools (UNICEF, 2021).

These data are subject to several limitations. These population-level estimates of DREAMS eligibility may differ significantly from actual DREAMS program enrollment due to differences in the geographic area served and populations targeted through programmatic efforts, as well as due to changes over time since VACS data collection occurred. Furthermore, the VACS lower age limit is 13 years, so the lowest DREAMS age band of 10–14-year-olds is truncated in this analysis. The VACS surveys are subject to recall bias, especially questions that cover the lifetime. The data analyzed here were collected between 2015 and 2019 and may not reflect more recent changes in the context in each country. There are some limitations of using VACS data to approximate DREAMS eligibility. In VACS, data on alcohol misuse cover only the past 30 days, while DREAMS eligibility may be based on any lifetime alcohol use. Thus, alcohol misuse is likely underestimated compared to actual population-level DREAMS eligibility in the countries examined. Finally, the COVID-19 pandemic has introduced myriad challenges for AGYW, including global increased prevalence of orphanhood (Hillis et al., 2021). In Kenya, a study using qualitative phone interviews found disproportionate increases in both economic hardship and transactional partnership among AGYW during the COVID-19 pandemic compared to young men in Kenya (Decker et al., 2021). Another study in Kenya found that the risk of pregnancy doubled and the risk of school dropout tripled among AGYW affected by lockdown compared with those who were not affected (Zulaika, 2022). Such exacerbations in risk for AGYW may be especially relevant in Uganda, where schools were closed for nearly 2 years and in which the current study shows a vast majority of girls already had risk factors for HIV acquisition. There is a need for more current population data to understand how COVID-19 may have impacted HIV risk for AGYW.

CONCLUSIONS

AGYW face complex social, biological, and environmental challenges to avoid HIV infection. Through a greater understanding of vulnerability and risk, the DREAMS program can better customize prevention programming by targeting and tailoring interventions based on the different needs of AGYW in each age band and in the specific country context. VACS data provide critically important population data on the prevalence of key factors and patterns of vulnerability. These data are collected following rigorous ethical standards that ensure privacy and confidentiality and enable AGYW to disclose risk behaviors safely and without stigma. VACS with subnational-level data can also provide insight into regional variations of risk factors and vulnerabilities. Overall, VACS data can be considered a valuable resource to understand DREAMS eligibility in the population and to sharpen programming to ensure that the most vulnerable AGYW are supported with the necessary services to prevent HIV.

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FIGURE 1.

Prevalence of meeting one or more DREAMS eligibility criteria among HIV-negative adolescent girls and young women, Uganda (2015), Zimbabwe (2017), Côte d'Ivoire (2018), Lesotho (2018), Kenya (2019), Namibia (2019), Mozambique (2019).
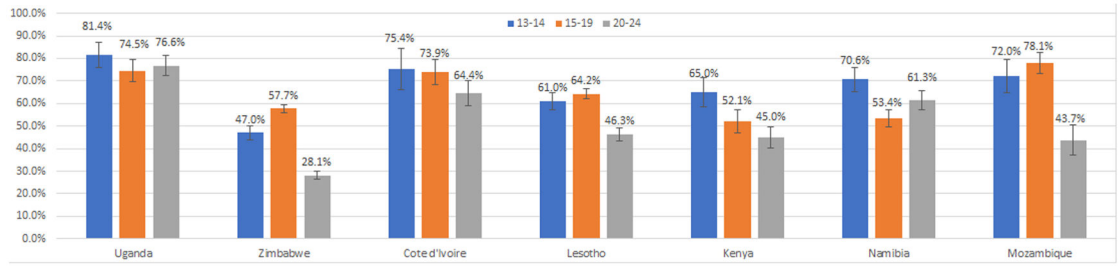
FIGURE 2.
Prevalence of meeting two or more DREAMS eligibility criteria among HIV-negative adolescent girls and young women, Uganda (2015), Zimbabwe (2017), Côte d'Ivoire (2018), Lesotho (2018), Kenya (2019), Namibia (2019), Mozambique (2019).
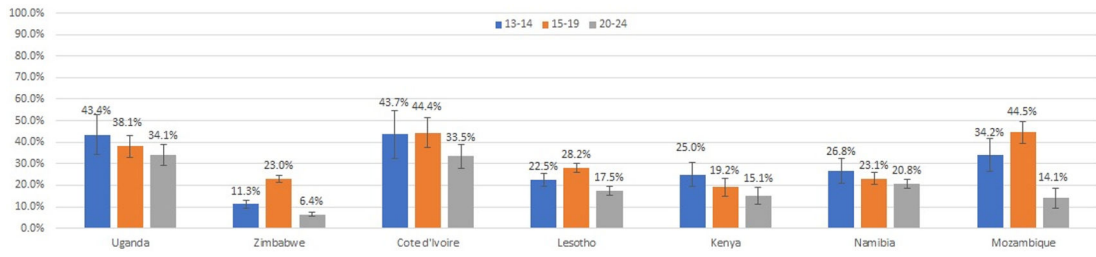
TABLE 1.

DREAMS Eligibility Criteria for Adolescent Girls and Young Women and Corresponding Indicators and Questionnaire Items From Violence Against Children and Youth Surveys, by Age Band

DREAMS Criteria	VACS Survey Indicators
AGYW ages 10–14 years	*AGYW ages 13–14 years*
Ever had sex	Ever had vaginal, anal, or oral sex
History of pregnancy	Ever experienced pregnancy
Lifetime experience of sexual violence	Ever experienced sexual violence
Physical or emotional violence in the past year	Experienced physical violence or emotional violence in the previous 12 months
Early alcohol use	Ever drank alcohol (more than a sip)
Out of school	Not currently attending school
Orphanhood	One or both biological parents deceased
AGYW ages 15–19 years	*AGYW ages 15–19 years*
Lifetime experience of sexual violence	Ever experienced sexual violence
Recent heavy alcohol use	4 drinks in a row any time in the past 30 days
Out of school	15–17: not current enrolled in school; 18–19: never attended school
Orphanhood	One or both biological parents deceased before the 18th birthday
Multiple sexual partners in the past year	Had two or more sexual partners in the previous 12 months
History of pregnancy	Ever been pregnant
Sexually transmitted infection	Ever been diagnosed with a sexually transmitted infection
Transactional sex (including staying in a relationship for material or financial support) in the past 12 months	Ever exchanging sex for food, money, goods, or other favors
Irregular or no condom use	No or irregular condom use with a nonmarital partner or with any partner if more than one sexual partner for those who are married
AGYW ages 20–24 years	*AGYW ages 20–24 years*
Lifetime experience of sexual violence	Ever experienced sexual violence
Recent heavy alcohol use	4 drinks in a row any time in the past 30 days
Multiple sexual partners in the past year	Had two or more sexual partners in the previous 12 months
Sexually transmitted infection	Ever been diagnosed with a sexually transmitted infection
Transactional sex (including staying in a relationship for material or financial support) in the past 12 months	Ever exchanging sex for food, money, goods, or other favors
Irregular or no condom use	No or irregular condom use with a nonmarital partner or with any partner if more than one sexual partner for those who are married

Note. DREAMS = Determined, Resilient, Empowered, AIDS-Free, Mentored, and Safe; AGYW = adolescent girls and young women.

TABLE 2.

Prevalence of DREAMS Eligibility Criteria Among HIV-Negative Adolescent Girls and Young Women Ages 13–24 years, by Age Group, Uganda (2015), Zimbabwe (2017), Cote d'Ivoire (2018), Lesotho (2018), Kenya (2019), Namibia (2019), and Mozambique (2019)

DREAMS criteria	Ages 13–14 Years Weighted % (95% CI) n	Ages 15–19 Years Weighted % (95% CI) n	Ages 20–24 Years Weighted % (95% CI) n
Uganda (unweighted n)	620	1274	1224
Ever had sex[a]	7.2 (3.1, 11.4) 36	50.6 (45.6, 55.7) 645	93.1 (90.4, 95.7) 1165
History of pregnancy[b]	0.0 (0.0, 0.1)[c] 1	25.7 (20.2, 31.1) 401	75.2 (69.9, 80.4) 997
Lifetime experience of sexual violence[d]	23.2 (16.2, 30.2) 173	46.9 (42.0, 51.8) 567	50.4 (45.8, 54.9) 617
Physical or emotional violence in the past 12 months[a, e]	57.4 (49.6, 65.2) 396	38.4 (32.3, 44.5) 593	28.4 (23.6, 33.1) 368
Early (13–14) or recent heavy alcohol use (15–19; 20–24)[f]	16.5 (10.5, 22.5) 72	4.2 (1.9, 6.4) 46	9.0 (5.7, 12.3) 87
Out of school[b, g]	13.8 (7.8, 19.9) 84	23.5 (18.6, 28.4) 325	5.1 (2.5, 7.8) 122
Orphanhood[b, h]	21.3 (14.0, 28.6) 132	21.9 (17.1, 26.7) 339	28.5 (22.9, 34.0) 382
Multiple sexual partners in the past 12 months[i, j]	32.1 (0.0, 73.2)[c] 5	15.6 (7.9, 23.2) 46	4.1 (2.1, 6.1) 41
STI[i, k]	5.0 (1.4, 8.7)[c] 24	9.1 (5.9, 12.4) 177	20.1 (16.1, 24.2) 324
Lifetime experience of transactional sex[i, l]	2.0 (0.0, 4.3)[c] 5	19.0 (13.3, 24.6) 110	17.3 (12.4, 22.2) 181
No or irregular condom use in the past 12 months[i, j, m]	99.6 (98.7, 100.0) 15	58.2 (49.8, 66.7) 254	37.4 (31.3, 43.5) 402
DREAMS eligible (1 or more criteria)	81.4 (75.9, 86.9) 507	74.5 (69.5, 79.4) 964	76.6 (72.2, 81.1) 947
2 or more criteria	43.4 (34.1, 52.7) 277	38.1 (32.9, 43.2) 547	34.1 (29.1, 39.1) 480
Zimbabwe (unweighted n)	1311	3408	2945
Ever had sex[a]	1.0 (0.4, 1.7)[c] 12	26.9 (25.0, 28.8) 904	81.6 (79.9, 83.2) 2401
History of pregnancy[b]	0.1 (0.0, 0.3)[c] 1	18.9 (17.3, 20.4) 631	71.7 (69.7, 73.7) 2092
Lifetime experience of sexual violence[d]	3.8 (2.8, 4.9) 51	12.1 (10.8, 13.3) 412	16.2 (14.7, 17.7) 487
Physical or emotional violence in the past 12 months[a, e]	18.5 (15.9, 21.0) 237	16.4 (15.0, 17.9) 571	13.2 (11.8, 14.6) 389
Early (13–14) or recent heavy alcohol use (15–19; 20–24)[f]	2.4 (1.5, 3.2) 35	2.5 (1.9, 3.0) 93	3.3 (2.7, 4.0) 107
Out of school[b, g]	11.0 (9.0, 13.0) 143	18.9 (17.3, 20.5) 634	0.7 (0.3, 1.0) 20
Orphanhood[b, h]	26.4 (23.5, 29.2) 317	32.1 (30.4, 33.9) 1023	40.2 (38.1, 42.3) 1083

DREAMS criteria	Ages 13–14 Years Weighted % (95% CI) n	Ages 15–19 Years Weighted % (95% CI) n	Ages 20–24 Years Weighted % (95% CI) n
Multiple sexual partners in the past 12 months[i, j]	0.0 (0.0, 0.0) 0	2.3 (1.1, 3.5) 16	2.7 (2.0, 3.3) 58
STI[i, k]	0.6 (0.2, 0.9)[c] 9	1.0 (0.7, 1.3) 35	3.3 (2.5, 4.0) 89
Lifetime experience of transactional sex[i, l]	23.0 (0.0, 50.5)[c] 2	4.3 (2.8, 5.8) 37	3.7 (2.9, 4.5) 89
No or irregular condom use in the past 12 months[i, j, m]	34.4 (0.0, 70.9)[c] 3	21.9 (18.4, 25.3) 161	13.5 (11.9, 15.1) 284
DREAMS eligible (1 or more criteria)	47.0 (43.8, 50.1) 607	57.7 (55.8, 59.5) 1956	28.1 (26.3, 29.9) 838
2 or more criteria	11.3 (9.5, 13.1) 147	23.0 (21.3, 24.7) 775	6.4 (5.4, 7.4) 193
Cote d'Ivoire (unweighted n)	208	502	485
Ever had sex[a]	10.3 (5.7, 15.0) 27	60.3 (54.1, 66.5) 309	93.4 (90.4, 96.4) 461
History of pregnancy[b]	1.3 (0.0, 3.0)[c] 3	24.6 (18.3, 30.9) 147	68.8 (60.6, 77.0) 363
Lifetime experience of sexual violence[d]	18.4 (12.2, 24.6) 34	29.1 (23.3, 34.8) 148	41.1 (35.2, 47.0) 172
Physical or emotional violence in the past 12 month[a, e]	57.3 (48.3, 66.3) 108	46.6 (39.7, 53.5) 211	40.1 (33.3, 46.8) 170
Early (13–14) or recent heavy alcohol use (15–19; 20–24)[f]	15.0 (5.4, 24.6)[c] 27	11.6 (7.7, 15.5) 56	20.2 (15.1, 25.4) 85
Out of school[b, g]	21.0 (14.3, 27.7) 47	13.7 (9.7, 17.6) 83	27.1 (21.6, 32.5) 160
Orphanhood[b, h]	11.5 (5.5, 17.4) 27	23.7 (18.6, 28.9) 118	32.5 (24.7, 40.3) 152
Multiple sexual partners in the past 12 months[i, j]	4.9 (0.0, 14.7)[c] 1	5.6 (2.4, 8.8) 19	7.9 (4.7, 11.2) 23
STI[i, k]	5.8 (1.2, 10.5)[c] 8	6.5 (3.6, 9.5) 35	12.0 (7.1, 17.0) 59
Lifetime experience of transactional sex[i, l]	11.0 (0.0, 30.4)[c] 2	7.0 (1.9, 12.0)[c] 22	10.7 (5.6, 15.8) 40
No or irregular condom use in the past 12 months[i, j, m]	58.5 (24.2, 92.8) 13	55.0 (44.8, 65.1) 155	33.8 (27.4, 40.1) 150
DREAMS eligible (1 or more criteria)	75.4 (66.3, 84.5) 155	73.9 (68.3, 79.4) 392	64.4 (58.8, 70.0) 297
2 or more criteria	43.7 (32.6, 54.7) 82	44.4 (37.4, 51.4) 237	33.5 (28.0, 38.9) 143
Lesotho (unweighted n)	1,486	3,218	2,397
Ever had sex[a]	2.4 (1.4, 3.3) 34	41.7 (39.0, 44.3) 1159	86.8 (84.9, 88.7) 1895
History of pregnancy[b]	0.2 (0.0, 0.4)[c] 2	14.9 (12.9, 16.9) 420	53.6 (50.3, 56.8) 1204
Lifetime experience of sexual violence[d]	5.3 (3.7, 6.9) 68	18.2 (16.2, 20.2) 500	25.3 (22.5, 28.1) 507
Physical or emotional violence in the past 12 months[a, e]	36.1 (32.3, 40.0) 490	37.7 (34.3, 41.1) 1100	31.9 (29.0, 34.9) 676

DREAMS criteria	Ages 13–14 Years Weighted % (95% CI) n	Ages 15–19 Years Weighted % (95% CI) n	Ages 20–24 Years Weighted % (95% CI) n
Early (13–14) or recent heavy alcohol use (15–19; 20–24)[f]	7.2 (5.5, 8.9) 102	2.3 (1.7, 2.9) 69	9.2 (7.4, 11.0) 181
Out of school[b, g]	4.0 (2.7, 5.3) 59	12.8 (11.2, 14.4) 415	1.4 (0.8, 2.0) 34
Orphanhood[b, h]	36.0 (32.8, 39.2) 472	44.4 (42.2, 46.6) 1221	46.2 (43.0, 49.4) 950
Multiple sexual partners in the past 12 months[i, j]	3.1 (0.0, 9.2)[c] 1	8.5 (6.5, 10.6) 91	11.0 (9.0, 13.0) 168
STI[i, k]	0.1 (0.0, 0.2)[c] 1	2.0 (1.4, 2.7) 59	6.2 (5.0, 7.3) 139
Lifetime experience of transactional sex[i, l]	9.6 (0.0, 23.1)[c] 2	4.9 (3.1, 6.7) 50	5.0 (3.9, 6.1) 89
No or irregular condom use in the past 12 months[i, j, m]	45.4 (21.8, 69.0) 10	27.4 (23.8, 31.0) 264	24.6 (22.1, 27.1) 386
DREAMS eligible (1 or more criteria)	61.0 (57.3, 64.6) 850	64.2 (62.0, 66.5) 1876	46.3 (43.3, 49.2) 957
2 or more criteria	22.5 (19.4, 25.6) 298	28.2 (26.1, 30.3) 806	17.5 (15.3, 19.7) 343
Kenya (unweighted n)	285	604	441
Ever had sex[a]	6.2 (2.0, 10.3) 10	25.6 (21.2, 30.0) 164	77.9 (72.5, 83.3) 344
History of pregnancy[b]	0.0 (0.0, 0.0) 0	11.2 (8.1, 14.2) 72	55.0 (48.7, 61.2) 258
Lifetime experience of sexual violence[d]	14.7 (9.9, 19.5) 37	25.8 (21.0, 30.5) 151	29.5 (25.1, 33.8) 121
Physical or emotional violence in the past 12 months[a, e]	57.0 (51.1, 62.9) 158	50.7 (45.4, 56.1) 309	49.2 (43.8, 54.7) 203
Early (13–14) or recent heavy alcohol use (15–19; 20–24)[f]	1.6 (0.1, 3.0)[c] 5	3.3 (1.1, 5.5)[c] 15	4.3 (1.6, 6.9)[c] 17
Out of school[b, g]	1.8 (0.2, 3.3)[c] 12	9.5 (5.6, 13.3) 62	5.1 (2.8, 7.4) 39
Orphanhood[b, h]	15.1 (9.6, 20.7) 36	18.3 (13.8, 22.8) 115	23.9 (19.3, 28.6) 96
Multiple sexual partners in the past 12 months[i, j]	3.4 (0.9, 5.8)[c] 1	5.5 (0.9, 10.2)[c] 7	5.1 (2.5, 7.8) 13
STI[i, k]	0.0 (0.0, 0.0) 0	0.8 (0.0, 1.5)[c] 5	3.3 (1.6, 4.9) 17
Lifetime experience of transactional sex[i, l]	0.0 (0.0, 0.0) 0	12.3 (5.2, 19.4) 21	8.3 (4.0, 12.6) 29
No or irregular condom use in the past 12 months[i, j, m]	51.5 (5.6, 97.4)[c] 4	41.3 (30.3, 52.3) 53	29.1 (23.2, 35.0) 74
DREAMS eligible (1 or more criteria)	65.0 (58.6, 71.3) 184	52.1 (46.8, 57.4) 316	45.0 (40.2, 49.8) 187
2 or more criteria	25.0 (19.5, 30.6) 62	19.2 (14.9, 23.4) 122	15.1 (11.1, 19.0) 59
Namibia (unweighted n)	745	1,711	1,580
Ever had sex[a]	3.9 (2.4, 5.5) 39	40.5 (35.9, 45.1) 754	90.2 (88.3, 92.1) 1380

DREAMS criteria	Ages 13–14 Years Weighted % (95% CI) n	Ages 15–19 Years Weighted % (95% CI) n	Ages 20–24 Years Weighted % (95% CI) n
History of pregnancy[b]	0.3 (0.1, 0.6)[c] 8	15.3 (12.4, 18.2) 252	56.5 (51.6, 61.4) 878
Lifetime experience of sexual violence[d]	10.6 (5.2, 16.0) 76	19.3 (15.2, 23.4) 301	24.6 (21.1, 28.1) 326
Physical or emotional violence in the past 12 months[a, e]	49.5 (42.5, 56.5) 317	44.8 (40.5, 49.0) 675	18.2 (15.6, 20.7) 271
Early (13–14) or recent heavy alcohol use (15–19; 20–24)[f]	20.6 (15.6, 25.7) 115	9.6 (7.2, 12.0) 152	18.2 (15.6, 20.7) 271
Out of school[b, g]	2.7 (1.0, 4.5)[c] 23	5.5 (4.1, 6.8) 113	2.5 (1.0,4.1)[c] 66
Orphanhood[b, h]	18.8 (14.1, 23.6) 139	22.9 (19.6, 26.2) 412	31.8 (27.4, 36.2) 467
Multiple sexual partners in the past 12 months[i, j]	4.3 (0.0, 12.1)[c] 2	10.0 (5.5, 14.5) 46	8.0 (5.6, 10.4) 78
STI[i, k]	0.8 (0.0, 2.5)[c] 2	0.7 (0.1, 1.3)[c] 14	2.8 (1.8, 3.9) 37
Lifetime experience of transactional sex[i, l]	4.6 (0.0, 10.4)[c] 4	3.6 (1.3, 5.8)[c] 37	3.6 (2.6, 4.7) 53
No or irregular condom use in the past 12 months[i, j, m]	33.8 (19.2, 48.4) 15	46.6 (39.6, 53.7) 278	52.3 (47.1, 57.4) 605
DREAMS eligible (1 or more criteria)	70.6 (65.2, 76.0) 457	53.4 (49.6, 57.2) 969	61.3 (57.0, 65.5) 937
2 or more criteria	26.8 (21.0, 32.6) 184	23.1 (20.2, 26.1 405	20.8 (18.6, 22.9) 303
Mozambique (unweighted n)	371	904	757
Ever had sex[a]	20.5 (11.2, 29.9) 45	67.7 (61.7, 73.7) 624	95.6 (93.1, 98.2) 733
History of pregnancy[b]	3.5 (0.6, 6.4)[c] 9	43.4 (38.1, 48.7) 388	81.8 (76.6, 87.0) 647
Lifetime experience of sexual violence[d]	15.2 (11.0, 19.4) 44	22.3 (17.3, 27.2) 167	23.1 (18.5, 27.6) 130
Physical or emotional violence in the past 12 months[a, e]	32.9 (25.5, 40.3) 96	27.9 (23.5, 32.2) 211	22.5 (18.0, 27.0) 163
Early (13–14) or recent heavy alcohol use (15–19; 20–24)[g]	1.4 (1.1, 1.7) 6	4.8 (2.1, 7.5) 35	9.2 (5.4, 13.1) 60
Out of school[b, g]	28.2 (21.7, 34.7) 93	31.0 (26.3, 35.7) 277	10.0 (7.1, 13.0) 68
Orphanhoo[b, h]	24.3 (18.3, 30.3) 86	25.3 (20.7, 29.9) 249	26.4 (20.8, 32.1) 209
Multiple sexual partners in the past 12 months[i, j]	4.4 (0.0, 10.1) 3	6.9 (3.3, 10.6) 25	5.8 (2.4, 9.2) 31
STI[i, k]	0.1 (0.0, 0.2)[c] 1	2.4 (1.4, 3.5) 25	4.5 (1.7, 7.3)[c] 36
Lifetime experience of transactional sex[i, l]	10.1 (0.6, 19.6)[c] 6	7.4 (3.1, 11.6) 41	3.5 (1.5, 5.4) 28
No or irregular condom use in the past 12 months[i, j, m]	43.1 (26.4, 59.7) 20	27.5 (21.4, 33.6) 150	25.3 (18.6, 32.0) 135
DREAMS eligible (1 or more criteria)	72.0 (64.7, 79.3) 226	78.1 (73.4, 82.8) 719	43.7 (37.2, 50.3) 296

DREAMS criteria	Ages 13–14 Years	Ages 15–19 Years	Ages 20–24 Years
	Weighted % (95% CI) *n*	Weighted % (95% CI) *n*	Weighted % (95% CI) *n*
2 or more criteria	34.2 (26.6, 41.7) 96	44.5 (39.2, 49.8) 389	14.1 (9.5, 18.6) 85

Note. DREAMS = Determined, Resilient, Empowered, AIDS-Free, Mentored, and Safe. [a]Risk factor only represents an eligibility criterion for the 10–14-year age group in DREAMS and thus is not included in overall eligibility estimates for the 15–19-year or 20–24-year age groups in this analysis; [b]Risk factor only represents an eligibility criterion for the 10–14 year and 15–19-year age band in DREAMS and thus is not included in overall eligibility estimates for the 20–24-year age groups in this analysis; [c]>30% relative standard error (RSE); [d]Sexual violence included any experience of forced or pressured sex, attempted forced sex, or unwanted sexual touching by any person; [e]Physical violence included any experience of slapping, punching, kicking, whipping, beating with an object, and threats or use of a knife gun or other weapon by a parent or other adult caregiver, a peer, or an intimate partner. For Uganda and Zimbabwe, the questionnaire only asked about emotional violence by parents and other adult caregivers. In all other countries, questions about emotional violence by parents and adult caregivers, intimate partners, and peers were included. For emotional violence by a parent, the measure included calling names, telling the child they were not loved or did not deserve to be loved, or were useless or stupid. Emotional violence by an intimate partner included insulting, humiliating, or making fun of them, keeping them from owning their own money, trying to keep them from seeing family or friends, keeping track of them or demanding to know what they were doing, or making threats to physically harm them. Emotional violence by a peer included making them feel really bad through name calling, saying mean things, or saying they did not want them around, telling lies, spreading rumors, or trying to make others dislike them, keeping them out of things on purpose, excluding them from a group of friends, or ignoring them. The questions on physical and emotional violence differed slightly based on individual VACS country questionnaires; [f]Early alcohol use was defined as any alcohol use in the lifetime for those ages 13–14 years and recent heavy alcohol use was defined as 4 drinks in a row at any time in the *past 30 days*; [g]Out of school refers to not currently attending school for AGYW ages 13–17 and never attending school for those 18–24 years old; [h]Orphanhood includes the death of a biological mother or father (single orphan) or both (double orphan) before age 18; [i]Risk factor only represents an eligibility criterion for the 15–19-year and 20–24-year age groups in DREAMS and thus is not included in overall eligibility estimates for the 13–14-year age group in this analysis; [j]Among those who had sex in the past 12 months; [k]Any lifetime sexually transmitted infection diagnosis; [l]Ever exchanging sex for food, money, goods, or other favors among those who had sex; [m]Irregular condom use includes those who sometimes or never used a condom with a nonmarital partner or with any partner if more than one sexual partner for those who are married, among those who had sex in the past 12 months. Values in bold denote estimates that represent eligibility criteria for that age group.

TABLE 3.

Overall DREAMS Eligibility by VACS Country and DREAMS Geographic Area

DREAMS area	<Ages 13–14 Years Weighted % (95% CI) n	Ages 15–19 Years Weighted % (95% CI) n	Ages 20–24 Years Weighted % (95% CI) n
Uganda (unweighted *n*)	620	972	1144
TOTAL DREAMS eligible %	81.4 (75.9, 86.9) 507	74.5 (69.5, 79.4) 964	76.6 (72.2, 81.1) 947
Central 1[a]	83.8 (76.9, 90.6) 100	78.5 (73.1, 83.9) 173	78.5 (73.1, 83.9) 177
Central 2[b]	85.4 (78.6, 92.2) 87	74.5 (68.0, 81.0) 187	76.7 (68.9, 84.6) 179
Mid-Northern[c]	79.0 (70.5, 87.5) 189	77.4 (73.1, 81.6) 167353	73.5 (68.1, 78.9) 316
Zimbabwe (unweighted *n*)	1311	3408	2945
TOTAL DREAMS eligible %	47.0 (43.8, 50.1) 607	57.7 (55.8, 59.5) 1956	28.1 (26.3, 29.9) 838
Bulawayo	41.8 (30.9, 52.6) 34	55.9 (50.1, 61.7) 179	40.4 (35.3, 45.6) 125
Chipinge	41.9 (24.3, 59.4) 22	58.3 (48.0, 68.6) 63	17.2 (10.7, 23.6) 15
Gweru	46.9 (33.0, 60.9) 27	58.3 (50.1, 66.5) 63	33.3 (23.8, 42.8) 32
Makoni	54.5 (37.1, 71.9) 20	53.8 (45.0, 62.5) 55	24.3 (11.8, 36.9) 14
Mazowe	39.9 (23.1, 56.7) 20	63.8 (54.7, 72.9) 49	25.1 (19.8, 30.3) 22
Mutare	45.5 (32.2, 58.7) 30	51.2 (42.3, 60.1) 87	20.4 (13.6, 27.3) 34
Lesotho (unweighted *n*)	1486	3218	2397
TOTAL DREAMS eligible %	61.0 (57.3, 64.6) 850	64.2 (62.0, 66.5) 1876	46.3 (43.3, 49.2) 957
Maseru	59.6 (51.4, 67.8) 146	65.3 (60.4, 70.2) 305	50.7 (44.9, 56.5) 231
Berea	63.1 (56.2, 70.0) 178	62.4 (57.7, 67.1) 414	43.3 (37.5, 49.1) 209
Namibia (unweighted *n*)	745	1711	1580
TOTAL DREAMS eligible %	70.6 (65.2, 76.0) 457	53.4 (49.6, 57.2) 969	61.3 (57.0, 65.5) 937
Khomas	61.2 (51.1, 71.4) 97	55.3 (49.3, 61.2) 273	62.5 (56.9, 68.2) 411
Oshikoto	64.9 (55.6, 74.1) 146	55.1 (49.7, 60.5) 261	62.5 (56.9, 68.2) 194
Zambézi	58.7 (50.8, 66.7) 123	63.2 (57.9, 68.4) 316	56.2 (49.9, 62.4) 191
Mozambique (unweighted *n*)	371	904	757
TOTAL DREAMS eligible %	72.0 (64.7, 79.3) 226	78.1 (73.4, 82.8) 719	43.7 (37.2, 50.3) 296
Gaza	59.7 (49.6, 69.9) 69	78.3 (72.0, 84.6) 245	51.4 (41.5, 61.2) 108
Zambezia	56.0 (45.6, 66.5) 74	76.3 (70.6, 82.0) 255	34.1 (27.3, 40.8) 88

Note. [a]Includes Bukomansimbi, Sembabule, and Rakai districts; [b]Includes Mubende, Mityana, Gomba, and Mukono districts; [c]Gulu, Oyam, and Lira districts.