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The benefits of multilevel interventions for girls' HIV prevention: evidence from Sub-Saharan Africa

Prof. Silvio Daidone

SUPERVISOR

Flavia Faraone (ID 100292)

CANDIDATE

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List of Acronyms

- AGYW: Adolescent Girls and Young Women
- AIDS: Acquired Immunodeficiency Syndrome
- ART: Antiretroviral Treatment
- cART: combined Antiretroviral Treatment
- HIV: Human Immunodeficiency Virus
- IHME: Institute for Health Metrics and Evaluation
- ILO: International Labor Organization
- IMAGE: Intervention with Microfinance for AIDS and Gender Equity
- IPV: Intimate Partner Violence
- NIMHD: National Institute on Minority Health and Health Disparities
- NNRTI: Non-Nucleoside Reverse Transcriptase Inhibitor
- SGBV: Sexual Gender-Based Violence
- STI: Sexually Transmitted Infection
- UNAIDS: Joint United Nations Programme on HIV and AIDS
- WHO: World Health Organization

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Introduction

Achieving gender equality, empowering women, and ensuring that women's sexual and reproductive rights are upheld is fundamental to reach the Sustainable Development Goals and fulfill the targets outlined in the 2016 United Nations Political Declaration on Ending AIDS. The HIV/AIDS pandemic has now been going on for four decades. During this time, the world has made immense progress; today, what was once a catastrophic health crisis has the potential to become a manageable, endemic condition. However, there are groups of the population which experience more health risks than the average due to deep-seated structural socioeconomic inequalities; in order to have homogenous progress in the fight against HIV, we must ensure that these groups are not left behind.

Sub-Saharan Africa is the region with the highest HIV prevalence in the world. Economic underdevelopment, unstable political conditions and low education levels are only a few of the factors which have favored the diffusion of HIV in the region over the years. In this adverse social and economic environment, young women face exacerbated challenges due to sexist gender norms, gender-based violence, and limited access to education. As a result, young Sub-Saharan African women bear a disproportionate burden of HIV; moreover, their disadvantaged status often means that individual-level health interventions do not have the desired effects. Indeed, individual-level interventions do not consider the structural determinants of the health disparities that affect women. In order to develop HIV interventions that retain their effectiveness even when the target group is at a disadvantage, policymakers must tackle socioeconomic disparities at the same time as health issues.

The aim of this thesis is to provide evidence of the effectiveness of multilevel interventions in HIV prevention of young Sub-Saharan African women. The first chapter of this thesis will provide a chronology of the spread of the HIV pandemic in Sub-Saharan Africa from the 1980's until the present day, touching on the possible sociopolitical factors that made the spread so fast; it will also introduce the main stakeholders that influence health policy in Sub-Saharan Africa. The second chapter will deal with the impact of HIV on the various sectors of Sub-Saharan African society; in this chapter, a section is dedicated to explaining what makes women particularly vulnerable to acquiring the virus. Lastly, the third chapter will tackle multilevel interventions; it will conduct a review of the current status of multilevel interventions in HIV prevention for Sub-Saharan African girls, then it will assess their benefits and limitations.

1. Chapter 1 – HIV in Sub-Saharan Africa: an Overview

1.1. Description of the virus

Douek et al. (2009) describe the human immunodeficiency virus (HIV) as a zoonotic (cross-species) Lentivirus that affects humans; over time, HIV leads to acquired immunodeficiency syndrome (AIDS), a condition which causes a progressive deterioration of the immune system. AIDS exposes the organism to life-threatening infections as well as cancer. If untreated, HIV can lead to AIDS and subsequent death in nine to eleven years from contagion (UNAIDS, 2010b)

In most cases, HIV is transmitted through sex; infection occurs through contact with or transfer of blood, semen and vaginal fluids (Rodger et al., 2019). Non-sexual transmission can occur from an infected mother to her infant during pregnancy, during childbirth and through breast milk (*Anthropology and Public Health*, 2009).

Two subtypes of HIV have been isolated:

- HIV-1 is the strain of virus that was first discovered among humans. It was originally named lymphadenopathy associated virus (LAV) and human T-lymphotropic virus 3 (HTLV-III). It is the more contagious of the two subtypes, as well as the most damaging to the organism; it is the cause of the majority of HIV infections around the world. HIV-1 is thought to have originated from the common chimpanzee (Gilbert et al., 2003).
- HIV-2 has a lesser capacity for infection than the other subtype and is mostly confined to West Africa. It is thought to have originated from the sooty mangabey, a monkey found in Senegal and in Côte d'Ivoire (Reeves & Doms, 2002).

1.2. A brief history of the HIV/AIDS pandemic in Sub-Saharan Africa

1.1.1 Origins and early diffusion

Unlike HIV-2, the initial circumstances of the diffusion of HIV-1 have not been established with certainty. Although scholars mostly agree that the virus was first transmitted to humans by chimpanzees, it is unclear which species of the animal might be a natural carrier of HIV-1. Cases of chimpanzee-hosted immunodeficiency virus, which are thought to have crossed the species barrier and infected humans, have been observed in Cameroon, but no documentation has provided a definitive answer (Keele et al., 2006). Scholars also assume that humans have been infected with simian immunodeficiency viruses in Sub Saharan Africa at many points in history. This is due in part to the widespread use of bushmeat practices (the hunting and consumption of wild animals with little to no monitoring) in the region; bushmeat hunting is thought to have been the origin of many infectious diseases, such as Ebola and chlamydia (McMichael, 2002). It is not clear, however, why in

the twentieth century such infections did not remain localized within hunting communities. A study conducted in 2010 suggests that the virus initially spread to larger areas due to colonialism, which led to social changes such as higher degrees of non-monogamous relationships and prostitution (de Sousa et al., 2010). The impact of colonialism, which peaked at the turn of the twentieth century, was likely worsened by the period of intensive injections carried out in Africa following the introduction of antibiotics, between 1950-1970 (Marx et al., 2001). It is today clear that in 1981, when the first case of HIV was registered in the United States, the virus had already spread across the African continent. In this period, widespread labor migration and transactional sex helped spread the virus extremely quickly, especially in East and Southern Africa; for instance, it is thought that 85% of sex workers in Nairobi were infected in 1986. However, early HIV tests were not accurate enough to provide precise data on the prevalence of HIV in Sub-Saharan Africa in the 1980's (Hunter, 1993).

In 1990, the World Health Organization published a report describing the status of the HIV pandemic in the world. The report estimated that 8-10 million people were HIV positive. Of these, a third were women, a majority of which were in Sub-Saharan Africa. Additionally, Sub-Saharan Africa accounted for over six million HIV-positive individuals, which amounted to 2,5% of the total population of the region. Of the 1,5 million cases of AIDS estimated to have occurred worldwide, 800 000 were from Sub-Saharan Africa (Netter, 1990). The virus also showed signs of high mortality: as of 1992, AIDS was the leading cause of death among adults in more than one Sub-Saharan African city (De Cock et al.). The virus' mortality had devastating effects on the fabric of Sub-Saharan African society, as will be explained in depth later on.

1.1.2 1990's

UNAIDS reports showed that the epidemic reached a critical status in the 1990's. As the first academic studies on the virus started to emerge, some scholars had predicted that HIV would reach its "natural limit" during the 1990's, and consequently stop spreading; these reports were proven wrong by the dramatic prevalence rates that were eventually registered. In fact, the amount of people infected by HIV increased drastically over the course of the decade: in Sub-Saharan Africa, the number of people living with HIV went from an estimated 5,81 million in 1990 to 19,61 million in 2000; it is the steepest increase in new infections in the history of the epidemic in the region (IHME, 2001). UNAIDS reported that the epidemic probably peaked in 1999 (UNAIDS, 2010b). The same is true for the mortality of the disease, which experienced a sustained upward trend up until the introduction of antiretroviral therapy in the mid 2000's: in 1995, AIDS accounted for 45% of all deaths in Zimbabwe, 27% of deaths in Zambia, and 10% of all deaths in South Africa (Roser & Ritchie, 2024). The impact of the epidemic on health was reflected on life expectancy rates in Sub

Saharan Africa: the region experienced a dramatic drop in life expectancy starting in 1990. In South Africa, life expectancy dropped by five years between 1990-2000; in eSwatini, one of the worst affected countries in the world, the drop amounted to a staggering 15 years. The numbers were especially worrying among pregnant women: in 2001, 44,9% of Botswana's pregnant women were HIV positive. Similar trends were observed in Zimbabwe, where prevalence of HIV in pregnant women reached 35% at the end of the 1990's, and eSwatini, where it reached 32,3%. These prevalence levels were even higher for younger pregnant women: in 2000, 55,6% of pregnant women aged 25-29 years old had contracted HIV; in eSwatini, the rate for this age group was 33%; in Zimbabwe, it was 40,9% (Roser & Ritchie, 2024).

1.1.3 2000's

The 2000's represented a turning point in the history of the HIV pandemic. Antiretroviral therapy (ART) had been in development for almost fifteen years, with mixed results: although early HIV treatment did prove effective in reducing the clinical progression and mortality of the virus, it posed serious challenges when it came to "pill burdens, inconvenient dosing, treatment-limiting toxicities and incomplete virological suppression" (Tseng et al., 2015). It was the introduction of non-nucleoside reverse transcriptase inhibitors (NNRTIs) in the mid 1990's that revolutionized HIV infection management. By integrating NNRTIs into existing ART, health authorities obtained a therapy regimen which finally achieved virological suppression. Although it has evolved and improved overtime, the strategy of combining multiple treatments is still the cornerstone of HIV treatment norms today, and has been given the name of combined antiretroviral therapy, or cART. The widespread uptake of cART, paired with increased investment in public health, led to significant decreases in the morbidity and mortality of HIV/AIDS in Sub-Saharan Africa. The scale up of antiretroviral therapy transformed what was considered to be a "life sentence" into a chronic but manageable condition, which opened the path for epidemic control and let experts hope that the pandemic could be turned into a low level endemic epidemic (A. Jones et al., 2014). Regarding the positive effects of ART, Teeraananchai et al. (2017) estimated that cART uptake at 20 old increased life expectancy by 23 years in Sub Saharan Africa, although there were some differences depending on gender and level of income. Moreover, UNAIDS reported that between 1999 and 2010, the number of new HIV infections decreased by 19% globally. Dwyer-Lindgren et al., (2019) conducted an extensive study which mapped HIV prevalence in adults from various states of Sub-Saharan Africa starting from the year 2000. They reported that there were substantial differences in HIV prevalence among administrative subdivisions (i.e., districts) in Sub-Saharan Africa; there was also a divide in prevalence among countries in southern Sub-Saharan Africa (Botswana, Lesotho, Mozambique, Namibia, South Africa, eSwatini, Zambia and Zimbabwe). The researchers furthermore reported that

HIV prevalence at country level increased in 15 out of 47 Sub-Saharan African countries, and experienced slight to significant decreases in the remaining ones. UNAIDS confirmed this data, reporting that in twenty-two Sub-Saharan African countries, HIV incidence had fallen by over 25% between 2001 and 2009. However, Sub-Saharan Africa remained the worst impacted region in the world: UNAIDS estimated that 1,8 million Sub-Saharan African people became infected with HIV in 2009, with the total number reaching 22,5 million, which accounts for 68% of the global total of seropositives. However, the widespread uptake of ART (which reached coverage of 90% of those in need in certain countries, i.e. Botswana) showed very positive effects: 20% less people died of AIDS in 2009 compared to 2004. Moreover, many country-level epidemics were stabilized between 2000-2010. UNAIDS showed that a reason for the decreasing prevalence rates in the region are due to effective behavioral changes, such as decreased promiscuity and higher condom use; moreover, prevention interventions such as voluntary male circumcision, antiretroviral therapy for prevention of mother to child transmission and preexposure prophylaxis achieved great results in the decline of rates of AIDS-related deaths and new infections. However, paid sex remained a concern as a major driver of HIV infection: it was estimated that it caused 32% of new HIV infections in Ghana, 14% in Kenya and 10% in Uganda in the first decade of the twenty-first century (UNAIDS, 2010b). Additionally, the most vulnerable groups of the population continued to be disproportionately burdened by the virus: women, especially young women, were the absolute worst affected group by HIV in the Sub-Saharan African region (UNAIDS, 2010c, p. 202). Finally, a trend that would be observed in the following decade started to show its signs: international funding for AIDS relief and prevention started to decline. UNAIDS reports the funds directed towards HIV prevention in Sub-Saharan Africa decreased from US\$15,9 billion in 2009 to US\$15 billion in 2010, an amount which was much lower than the estimated US\$ 23 billion needed in 2015 for an adequate response to the epidemic (UNAIDS, 2010a).

1.1.4 2010's

In the 2010s, the world experienced a consistent downward trend of new HIV infections and AIDS-related deaths, coupled with a gradual increase of testing and treatment uptake. To this effect, UNAIDS reported that, as of 2018, four in five seropositive people knew their HIV status; nearly two thirds of all HIV-infected people were receiving antiretroviral treatment; finally, more than half of the people living with HIV had achieved virological suppression. These sustained improvements also regarded the Sub-Saharan African region, which in 2019 was home to 54% of the world's seropositive individuals. Here, structural approaches to HIV prevention led to an increase in condom use, and a gradual but steady adoption of pre-exposure prophylaxis. Moreover, between 2016 and 2019, around eleven million voluntary male circumcisions were carried out. Significantly positive results were also

observed with regards to the mortality of AIDS, which decreased by 44% in southern and eastern Africa between 2010 and 2018; in the same period, new infections per year decreased by 28%. However, a number of economic and sociocultural barriers still impeded adequate access to healthcare services in disadvantaged regions: for instance, in Sub-Saharan Africa median condom use by men was 58,6% in 2019, extremely far from the 2020 goal of 90%. Moreover, gender inequalities and gender violence continued to exacerbate health disparities, and the gap in seropositivity between men and women remained wide: HIV infections among young women were 60% more than among men of the same age. Additionally, the low coverage of ART among pregnant women in Sub-Saharan Africa is likely the leading cause of new child HIV infections in the region. In fact, four in ten child infections in 2018 happened because a seropositive mother did not receive sufficient treatment during her pregnancy; 22% of new child infections occurred due to insufficient treatment during breastfeeding; and another 14% happened because the mother became HIV positive during breastfeeding. The effects of gender inequality on health disparities are worsened by insufficient education about HIV: seven in ten young women in Sub-Saharan Africa do not have an adequate knowledge of HIV. UNAIDS asserted that HIV prevention in women of reproductive age still posed a serious challenge in the global response to AIDS, and reaching adolescent girls and young women was a key objective outlined by the Global HIV Prevention Coalition, a coalition of UN Member States formed in 2017 to pool resources and coordinate AIDS prevention efforts.

1.3. The current status of the pandemic

Despite the hardships imposed by the rise of the Covid-19 pandemic, the scientific community is currently fairly optimistic about the future global developments of the HIV pandemic, especially in Sub-Saharan Africa. In fact, although progress was observed consistently in the entire world, it was in this region that the greatest steps forward were made. A significant indicator of the progress that has been made in the four decades since the start of the pandemic is the number of countries that have achieved the 95-95-95 goal. The 95-95-95 goal is a policy target which was set by UNAIDS to give a concrete goal to policymakers when developing and implementing HIV prevention strategies: the goal is reached when 95% of HIV positive people in a country are aware of their status, are receiving treatment and use contraception. According to data by UNAIDS five Sub-Saharan African countries have already achieved the goal (Botswana, eSwatini, Rwanda, Tanzania, and Zimbabwe), and eight more in the region are close to reaching it. Moreover, the number of new infections have experienced the strongest decline in the Sub-Saharan African region: between 2010 and 2022, the rate of new infections in the region decreased by 57%. UNAIDS estimates that this is due to increased commitment on the part of political leaders, as well as consistent funding being allocated in HIV prevention. As was the case in previous decades, however, structural inequalities within the Sub-

Saharan African society are still cause for grave disparities in the distribution of HIV prevalence among genders: adolescent girls and young women accounted for 63% of new infections in 2022. At the same time, this social group is also subject to policy underrepresentation: only 42% of the districts with significantly high HIV prevalence have dedicated prevention programs for younger girls. This means that, compared to their male counterparts, they are still at a disadvantage when it comes to obtaining “female-friendly biomedical prevention tools” (UNAIDS, 2023), such as pre-exposure prophylaxis and female contraceptives, which would decrease their chances of being infected with HIV. Achieving widespread treatment coverage for adolescent girls and young women is a crucial objective due to its importance in preventing mother-to-child transmission in the event of pregnancy. Moreover, struggles in achieving gender equality are still reflected in the perpetration of gender-based violence in the region; UNAIDS reported that in six Sub-Saharan African countries with high HIV prevalence, women who were victims of gender-based violence were 3,2 times more likely to be HIV positive than those who were not victims.

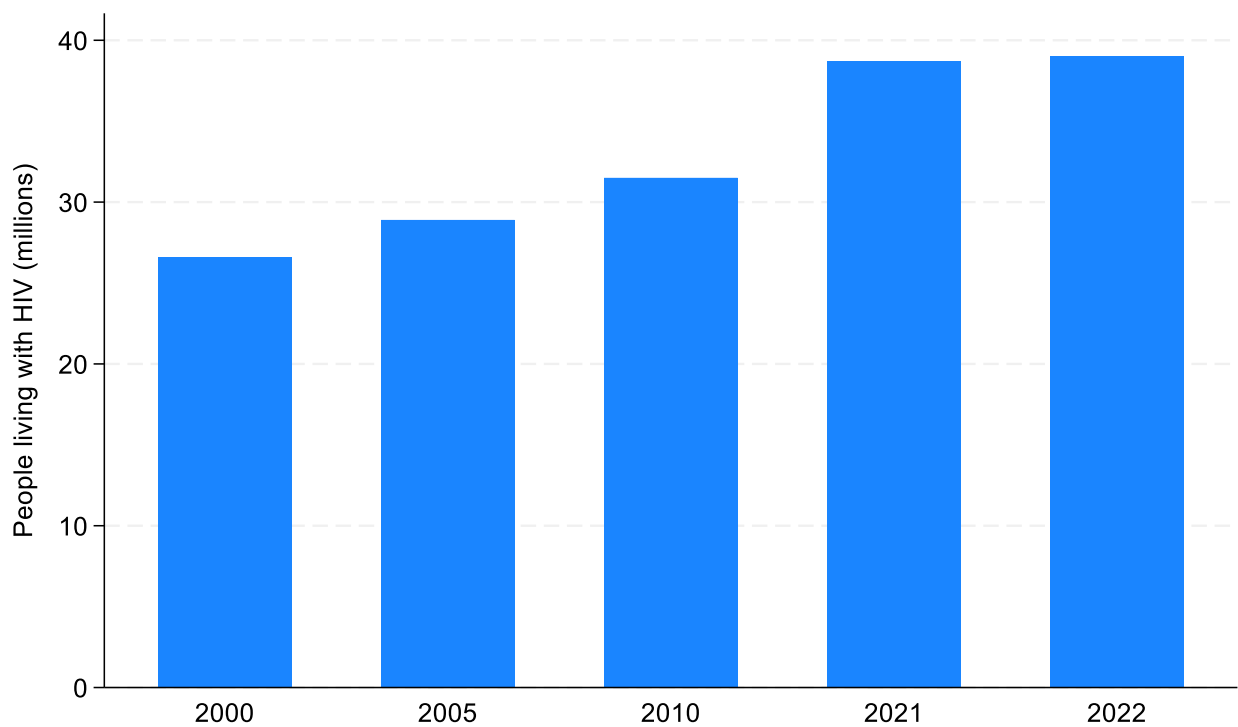


Figure 1: Number of people living with HIV (millions), 2000-2022. Source: UNAIDS

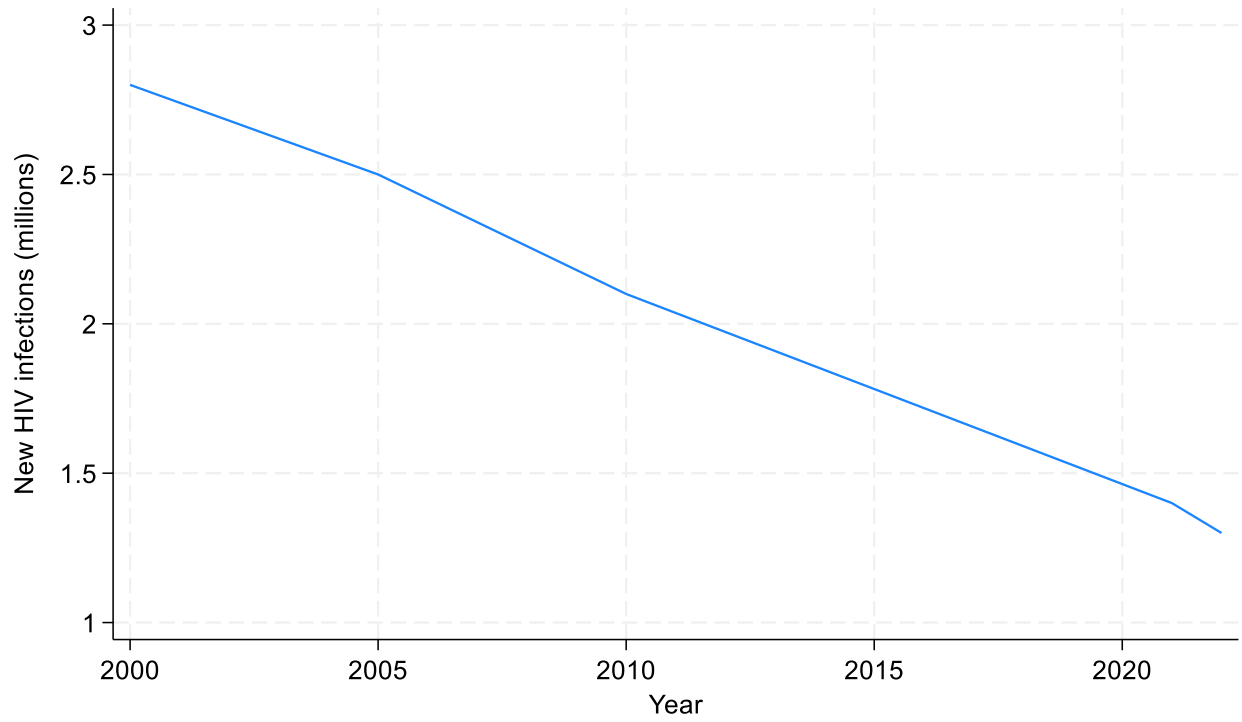


Figure 2: Number of new HIV infections (millions), 2000-2022. Source: UNAIDS

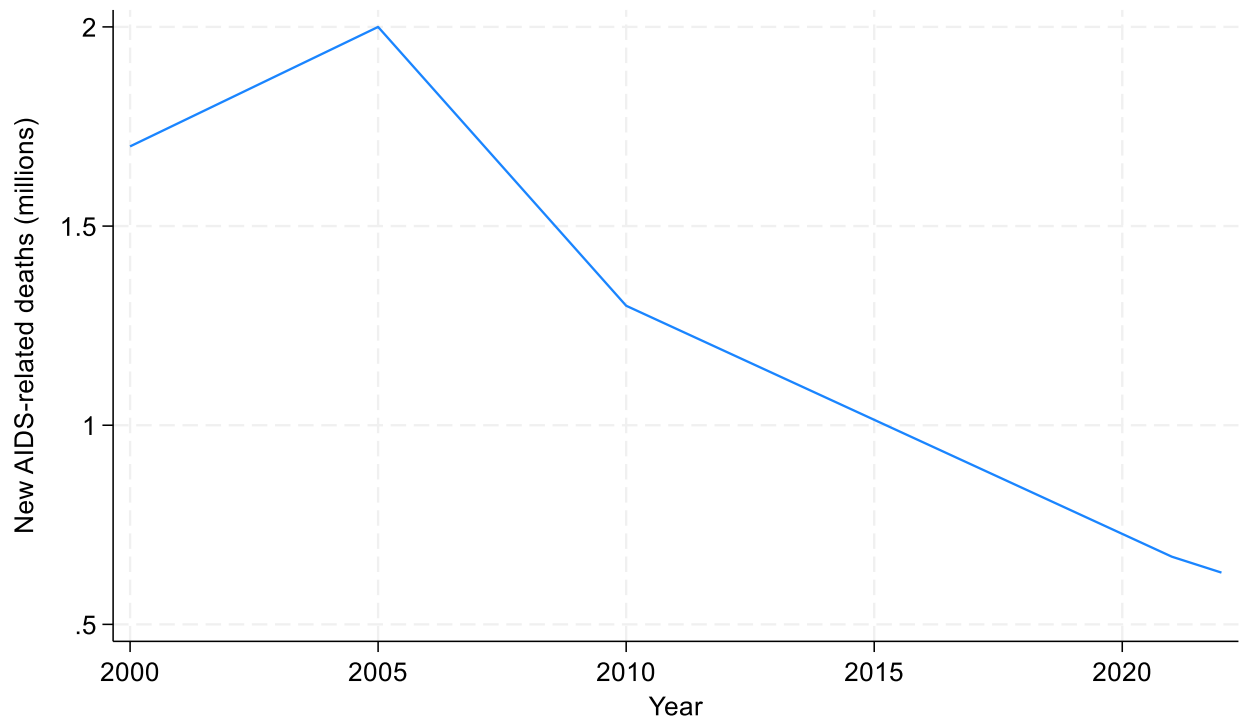


Figure 3: Number of AIDS-related deaths (millions), 2000-2022. Source: UNAIDS

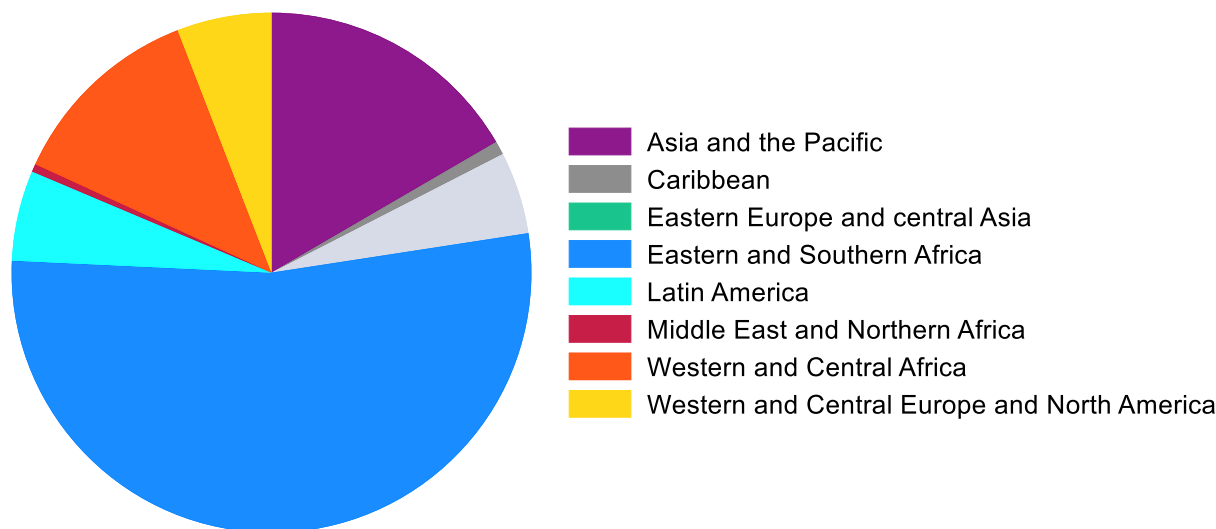


Figure 4: Distribution of HIV by world region, 2022. Source: UNAIDS

1.4. The political economy of sexual and reproductive health

There is ample literature analyzing the relationship between various political economy factors and health outcomes. Societies are complex structures that are shaped by their history as well as contemporary economic choices, power relations, governance, policies, legal norms, culture and values. All of these aspects together form what we call political economy, and all have been found to be linked to population health (Krieger, 2024). One of the most studied aspects of political economy's impact on health is the influence of economic growth and development on mortality rates: for instance, Szreter (1997) stated that without adequate levels of population health, economic growth will not lead to economic development. However, studies show that economic development does lead to improved overall health, although the causal mechanism between the two is not clear. Some scholars have hypothesized that medical developments might explain this trend in health (Floud et al., 2014), while others have speculated that it is due to increased consumption and output as well as improved welfare and social services, including public health services (Cutler et al., 2006; Szreter, 1988). Strong evidence exists, for instance, that individuals who lose their jobs experience significant increases in mortality (Roelfs et al., 2011); this suggests that there is a complex interplay between economic and social aspects within political economy, and that policy should be tailored to this end. Scholars also suggest that changes to healthcare policy have an impact on health outcomes: Gopalan et al. (2014) show that conditional cash transfers for pregnant women to facilitate the attendance of healthcare professionals during birth was associated with reduced perinatal and neonatal death in

India. However, systematic literature reviews such as McCartney et al. (2019) state that there is little reliable research on the impact of other healthcare policy, such as wider health insurance coverage or healthcare governance, on health outcomes. Many studies have also considered the impact of income inequality on health. Kondo et al. (2009, 2012) show that income inequality is damaging to health, particularly in those countries where the Gini coefficient is greater than 0.3 after 1990. There is also noteworthy evidence that suggests that housing conditions and, in general, the physical environment in which a person lives have an effect on the person's health. For example, warmth measures were found to be beneficial for health in Thomson et al. (2013). However, there is insufficient evidence regarding the impact on health of interventions to improve slums in low-income countries.

In Sub-Saharan Africa, the challenge of finding healthcare, especially reproductive healthcare, is a critical issue. As a region that is heavily affected by the HIV/AIDS pandemic as well as other crises, Sub-Saharan Africa's need for healthcare is high, but this demand often goes unmet. For instance, Sub-Saharan Africa is the region with the lowest level of contraceptive prevalence in the world and the highest level of unmet need for contraception, especially for young sexually active women (Cleland et al., 2014); a subsequent study showed HIV prevalence to be strongly negatively correlated to contraceptive prevalence (Sully et al., 2020). Additionally, Ali et al. (2004) showed that access to contraception depends not only on material availability, but also on the so-called "psychosocial access" to contraception, that is, the acceptability of contraception within society. Therefore, a government's decision to invest in contraception coverage is simultaneously a decision to counter the HIV pandemic. Studies have also shown that investments in reproductive health yield enormous benefits, especially for young people; Patton et al. (2016) stated that investing in younger generations' health would bring a "triple dividend of benefits": for their present quality of life, for their future adult lives and for the lives of their children. A separate study has estimated that a US\$4.50 investment per capita on a package of health interventions (including HIV prevention) on young people in Sub-Saharan Africa would yield socioeconomic benefits ranging from six to seventeen times the cost of the intervention (Sheehan et al., 2017). For this reason, institutions such as UNAIDS have repeatedly called for leadership to extend care to all those who need it (UNAIDS, 2019, 2023). The Sub-Saharan Africa political leadership has tried to recognize the cruciality of funding healthcare: in 2001, a number of African governments signed the Abuja Declaration, committing to devote at least 15% of their yearly national budget to the healthcare system (WHO, 2010). Being a low-income region, however, Sub-Saharan Africa's resources are very limited; more than twenty years after the Abuja declaration, only a few African States have achieved the target. With spending on healthcare averaging about 7.2% of the national budget, the region consistently ranks last in the world for funds allocated to healthcare (Wagstaff et al., 2018). Generally, the healthcare system in Sub-Saharan Africa

is characterized by low spending from the government and a high dependency on external funding and out-of-pocket payments by households. However, governments are still crucial stakeholders when it comes to Sub-Saharan African healthcare policy, as they operate on the international arena to achieve cooperation among countries, to elicit investments from abroad and to reduce trade barriers in order to make treatment more accessible. The influence of international organizations is also fundamental, as they often provide frameworks for the development and implementation of interventions to governments. In addition to this, international organizations also financially contribute to heavily HIV/AIDS burdened countries; for instance, the International Labor Organization protects and supports people with AIDS, while the Red Cross aids HIV patients who live in situations of emergency (i.e. war-torn zones). Finally, in the early 2000's, trade unions and women's organizations from within Sub-Saharan Africa started to emerge with the aim of advocating for HIV prevention at the community level; moreover, business coalitions to combat HIV were formed around the same time, such as the Global Business Council on AIDS; lastly, pharmaceutical corporations, such as Boehringer-Ingelheim, have repeatedly offered free ART to low-income countries, including Sub-Saharan Africa (UNAIDS, 2010b).

2. Chapter 2 – HIV’s impact on Sub Saharan African society and women’s increased vulnerability to infection

2.1. Introduction

Thanks to the survival benefits of antiretroviral treatment, the last twenty years have seen a substantial decline in AIDS-related deaths all over the world. Despite its decrease in mortality, however, the incidence of HIV is still on the rise, its burden disproportionately carried by the most vulnerable groups in society (Kharsany & Karim, 2016).

Sub-Saharan Africa is the worst HIV-affected region in the world. Additionally, adolescent girls and young women are still disproportionately affected by HIV: in 2022, Sub-Saharan African girls made up for 60% of new cases of HIV among adolescents; in the same year, 210000 young women between the ages of fifteen and twenty-four years old became infected with HIV (UNAIDS, 2023). These alarming numbers are made even graver if put into the context of the great scientific advancements that the world has experienced in the field of HIV treatment.

It has been demonstrated that the significant disproportion in the disease burden borne by women is the product of a combination of gender discrimination and policy underrepresentation (UNAIDS, 2002). The girls who face the highest vulnerability to HIV/AIDS are those who are most subject to gender discrimination: for example, a higher risk of contracting HIV is one of the consequences on health of experiencing violence, both physical and psychological, from one’s intimate partner (Dillon et al., 2013). As episodes of violence stem from deeply rooted gender inequality, it can be stated that those women who can’t uphold their reproductive rights are more exposed to HIV infection. The same can be asserted for many other socio-cultural factors which strip women of power over their relationships, their sexual lives and their ability to take decisions (including medical decisions) for themselves. These aspects will be discussed in more detail later in this chapter. Sub-Saharan African women are also the sole members of the family who are tasked with caregiving: in order to fulfill this role, they are often forced to make significant sacrifices in other sectors of their lives, such as studying and working (UNAIDS, 2002). This has serious repercussions on families in the cases in which the mother (or the main caregiver) contracts HIV and is prevented from working.

This chapter will analyze how HIV and AIDS influence the different sectors of Sub-Saharan African society. It will also attempt to highlight how women’s lives are affected by the disease and explain the main reasons behind their heightened vulnerability to infection.

2.2. Households' socio-demographic characteristics

A high prevalence of HIV/AIDS in a region has serious consequences on the structure and stability of households. A country in which HIV prevalence is significant will experience an unnaturally high adult mortality rate, which leads to a decline in the population of prime working age. This demographic setting is known as a “demographic hourglass”: among other effects, it increases households' vulnerability to poverty and raises dependency ratios. In a social context in which women are often uneducated or unqualified to work, the death of the male in the household has serious repercussions on the economic outcomes of children and the elderly (Buvinic et al., 2009)

The impact of HIV and AIDS on households' economic situation also plays a role in their socio-demographic characteristics. Dealing with HIV/AIDS within the family enormously increases healthcare and funeral expenditure. To cope with such mounting expenses, households are forced to take out loans, often in the form of cash transfers from extended family members; to repay these loans, they might sell precious assets such as vehicles, livestock and even land. Once they cross this line, the possibility of them ever recovering their former economic situation becomes even slimmer. As a result, families often “restructure” themselves, sending children to live with relatives, or, very often, removing them from school and putting them to work (UNAIDS, 2002). This phenomenon once again disproportionately affects young girls: since they are made responsible for caring for the sick in their family, they are increasingly retired from school. Once home, they are made to substitute their mother as the main caregiver of the household, which decreases the possibility that they will return to school (Ndinga-Muvumba & Pharaoh, 2006). The disintegration of families, which become “ineffective social and economic units”, results in the collapse of the traditional support system that is traditionally offered to the elderly by their children; instead, older people are often asked to take on the burden of caring for children. This contributes to the already grievous psychosocial strain that HIV puts on families (Cohen, 2001).

Orphanhood is another direct consequence of the disease's disruptive effect on households. Indeed, HIV often leads to household dissolution: if one or both of the parents die, children might be sent to live in (often overcrowded) orphanages. Orphanhood has a significant impact on children's schooling and health; moreover, it has been proven that children who have lost their mother have worse schooling and health outcomes than children who have lost their father, especially in poorer households (Yamano & Jayne, 2004). Gender inequalities also play a role in the disadvantage that children face when orphaned: orphaned girls are exposed to HIV earlier than other children, especially if the household they come from is poor. Further, girls who become orphans tend to marry at significantly younger ages (Yamano & Jayne, 2004). Yamano and Jayne found that the number of

women in rural households in Kenya greatly reduces if the male head of the family dies; the outmigration of women was attributed to marriage, as a response to the financial strain put on the family by the death of the male. Changes in household composition are not the only reason that induce girls to get married early. For example, in HIV/AIDS affected communities, it is believed that marriage is a means of protection from contracting the disease since it reduces sexual promiscuity. For instance, Clark et al., (2007) show that 49% of the women and 60% of the men in Malawi believe that women can avoid contracting HIV if they get married. Finally, being HIV positive is associated with a great deal of societal stigma in Sub-Saharan Africa: therefore, men might seek younger brides in order to be certain of their “purity” to protect themselves from infection. The impact of orphanhood on early marriage for girls has been studied by (Beegle et al., 2008); they report that increased hours of house labor are strongly associated with the likelihood of early marriage for girls, which they speculate is due to the perceived increase in the “value” as a bride of a girl who is experienced in chores. They also explain that earlier marriage is associated with increased health risks and a higher probability of “bad matches”, that is, unhappiness in the couple.

Although the impact of the virus on children’s schooling has already been mentioned above, it is worthwhile to analyze it in further detail. HIV/AIDS impacts the demand for education in various ways. Firstly, fewer children will be born in a society in which HIV is present; many children will also die before they reach school age if they are born with the virus. This significantly reduces enrollment rates. Secondly, as mentioned above, the loss of income and the additional expenses borne by households where an adult is ill increase the demand for child labor, resulting in children being taken out of school (P. Zinyemba et al., 2020).

2.3. Labor force productivity

The majority of people living with AIDS in Sub Saharan Africa are between fifteen and forty-nine years old, the prime of working lives (UNAIDS, 2002). Therefore, AIDS leads to the death of a great number of working age adults, putting a considerable dent on the labor force and reducing labor force productivity. Data shows that labor productivity in Africa has decreased significantly between 2005 and 2019 (Ogundipe & Olarewaju, 2020); moreover, the International Labour Organization has reported that, as of 2021, output per laborer continued to shrink (ILO, 2018). Although it is hard to assess whether this systematic decline in productivity is actually a consequence of the high prevalence of HIV/AIDS in the region, HIV prevalence and output per laborer have been proven to be negatively correlated (Ogbodo et al., 2024).

There are several factors through which HIV/AIDS is thought to affect labor force productivity. First, AIDS reduces people’s ability to work, increasing unemployment: Levinsohn et al. (2011) find that,

in South Africa, being HIV positive increases the probability of being unemployed by seven percentage points, a rate which rises to eleven percentage points for the less educated. Moreover, worker turnover in such an extraordinary situation is often below standard: as younger, less experienced workers are hired to replace more experienced ones, productivity might decrease. This not only impacts the level of output of an economy, but it also harms the cost-benefit balance of hiring and training new workers for enterprises which are already struggling, often leading to firms downsizing. With its debilitating effects on the organism, AIDS also forces multiple individuals in a household to divert efforts away from income earning activities: not only does it make employed adults unfit for work, but it also takes a toll on their healthy caregivers, making it difficult for them to earn any income. When HIV affects employees with managerial jobs, their prolonged absence due to sickness disrupts the internal organization of firms. This greatly damages productivity and product quality, which erodes the customer base. Moreover, high rates of absenteeism increase training and recruitment costs, as well as company costs for healthcare, funeral benefits (which are often provided for several employees in Africa) and pension fund services (UNAIDS, 2002).

Many scholars have put emphasis on the important role played by intergenerational poverty as a determining factor for HIV and low labor productivity. The dynamic between the three is often seen as a vicious cycle, with the Harvard International Review going so far as describing HIV and poverty in Sub Saharan Africa as a “joint epidemic” in 2001. The nexus between the three is straightforward. Poorer people are the population segment most exposed to HIV; additionally, poverty very often transcends generations, meaning that the children of the poor are also likely to be poor themselves as adults. At the same time, poverty is associated with low labor productivity; this is due to the fact that poverty is caused by a “weak endowment of human and financial resources, such as low levels of education, low literacy rates, few marketable skills and poor health status” (Cohen, 2001 p. 56). Therefore, the low productivity rates associated with poverty are a factor of risk for contracting HIV; the virus in turn decreases productivity and income again, perpetuating a cycle of poverty which will also affect generations to come (Cohen, 2001).

It is also extremely important to note the HIV/AIDS pandemic’s consequences on child labor in Sub Saharan Africa. Children’s general wellbeing is adversely affected by the death of one or both parents, which also influences their ability to stay in school: many children are thus forced to work to assist their families. Children’s work is physically and emotionally difficult, dangerous to their health, and poorly paid. This is often accompanied by cases of sexual harassment and exploitation, which carries the risk of HIV infection (Ibrahim et al., 2019). The International Labor Organization’s International Programme for the Elimination of Child Labour has reported that approximately 72.1 million children

are currently in child labor in Africa (ILO). Many of the factors that have HIV-affected families pull children out of school and into work have already been delineated: financial strain, ostracism towards HIV-positive people, caregiving needs are all factors that drive child labor rates up in areas with high HIV prevalence.

2.4. Income

Of all the ramifications of the HIV epidemic in Sub-Saharan Africa, the one that regards income is perhaps the most complex to analyze. This is because the level of income and production of an economy is determined by several factors, ranging from productivity to savings, which are in turn directly affected by HIV prevalence; this makes causal relations between HIV prevalence and income hard to establish. However, given the chief importance of income for an economy's growth and development, ample research exists on the topic.

Nketiah-Amponsah et al., (2019) attempted to analyze the effect of HIV on economic growth, measured in growth in per capita income, in forty-six Sub-Saharan African countries in the period between 2000 and 2015. They found that, in regions with high HIV prevalence (around 6%) GDP per capita had grown of less than 5% over the fifteen-year period, a rate that is not sufficient to cause any improvement in the welfare of the affected populations. Mahal (2004) analyzed the consequences of HIV/AIDS on savings. It was argued that HIV/AIDS could result in a decline in savings from increased medical costs; moreover, the decrease in life expectancy due to AIDS' morbidity and mortality could reduce people's propensity to save for their consumption needs in their old age.

Income is also majorly affected by labor force productivity, which has been proven to decline with increases in HIV prevalence. This factor's impact has been reiterated by many scholars, who have stated that "a well-functioning labor force is important to increase productivity and economic growth"(Eludire, 2023). Labor force participation has been positively associated with economic growth and is considered a catalyst for development: high labor participation rates increase a country's potential for production, leading to higher output (Eludire, 2023). Scholars have also analyzed the relationship between women's labor force and growth: Appiah (2018) investigated whether developing nations experience different economic outcomes from female labor force participation than Sub-Saharan African countries, finding that women's participation in the labor force has a positive impact on economic growth in developing countries. Eludire has also stressed the importance of participation in all sectors of an economy for growth and development- Dixon et al. (2002) predicted how lower productivity rates at the domestic level would reduce exports, while there may be an increase in imports of pricy healthcare goods. If strategic economic sectors are affected by the decrease in export earnings, the consequences can be severe: the balance of payments between

exports and imports expenditure would be harmed, and countries might find themselves in default over debt payments at times in which their national budgets are already under pressure. It follows naturally that a thriving, and therefore healthy, workforce is an asset for any country; consequently, the harmful effects of HIV on the Sub-Saharan Africa workforce will inevitably be reflected in its economies. Moreover, Dixon stated that the periods of illness that come with AIDS and the decrease in labor productivity associated with them exponentially increase the annual per capita costs for sickness. Stover & Bollinger (1999) further claimed that AIDS costed 17\$ per employee in a Kenyan manufacturing firm, and a staggering 300\$ per employee in the Ugandan Railway Corporation. Dixon argues that these costs reduce profits as well as competitiveness, which in turn reduce government earnings and increase their spendings, setting the grounds for financial crises.

HIV also reduces households' ability to produce and purchase food, thereby decreasing consumption and fostering food insecurity. Ogolla (2018) investigated the effects of HIV/AIDS on household food security in the rural county of Homa-Bay in Kenya. He based his study on the assumption that HIV's effect on health harms economic productivity while reducing the household resources, resulting in food insecurity. Moreover, he mentioned data that reported that 70% of the African population engages in agriculture, and 82,4% of the population of Homa-Bay County relied on agriculture as the main food source; this information motivated him to analyze the impact of HIV on agriculture. He stated that "any interference with people's ability to engage in agricultural activity would have a direct impact on the area's food security, and ultimately its overall health".

Another way in which HIV affects economic growth is through its damaging effects on the accumulation of human capital. Decreases in human capital harm economic growth in two ways: directly, they reduce income per capita as lower levels of education lead to lower paying jobs; indirectly, they decrease the marginal return to physical capita, thereby reducing the incentive to invest (Ferreira et al., 2011). Ferreira et al., along with Mahal have thoroughly studied the impact of the HIV/AIDS epidemic on adults' incentives to accumulate human capital for themselves. They found that the sharp decline in life expectancy due to the epidemic would lead to falls in the returns to investment in education, paired with an increase in the opportunity cost of staying in school. Therefore, they estimated that human capital would decline. Additionally, the effect of HIV/AIDS on human capital accumulation is channeled through the significant increase in orphaned children due to the epidemic. As has been stated above, the falling ill of one or both parents in a household completely overturns a child's life. As soon as the parent begins to show symptoms, the child is often forced to shoulder many new responsibilities, such as caring for the sick adult, which are very time consuming. As a result, they might have difficulties attending school and might drop out in order to find a job. The situation only worsens if the parent

dies: on top of an already precarious economic situation, the orphaned child also faces stigma from their peers, which manifests in the form of psychological abuse and discrimination. McGaw & Wameyo (2005) show that 98% of AIDS orphans are discriminated by their guardian: they are dressed in “poor clothing (often without a school uniform) and are in poor health and hygiene conditions, shown by the presence of lice, flea or symptoms of AIDS”. Some AIDS orphans under the care of guardians or institutions are also offered less educational opportunities, healthcare and protection from harm. Balk et al. (2004) reported that orphans were less likely to be in the expected grade levels compared to non-orphans in five Sub Saharan African countries. Dauda (2018) examined the effect of “AIDS orphanhood” on human capital development in Nigeria, the most populous country in Africa and the second in the continent for number of HIV positive people after South Africa. Dauda reports that in 2009, Nigeria also had the highest number of AIDS induced orphans in the world at 2.5 million. He found that there was a very significant margin in school attendance between orphans (55%) and non-orphans (77%), and that this was paired with “deplorable living conditions” such as malnourishment, lack of clothes and shelter for the former group. Dauda argued this would have effects on the Nigerian economy over the years in terms of welfare, educational attainment, and health.

2.5. Women’s lives and heightened vulnerability to infection

Women bear a disproportionate burden of the HIV/AIDS disease. This is due to a multitude of economic, social, and cultural factors that will be explained in depth in the next section of this thesis. However, it is important to dedicate a separate section to the impact of the virus on the lives of Sub-Saharan African women, as the increased disease burden associated with their gender is reflected in labor market, human capital and, naturally, health outcomes. Moreover, the impact of HIV and AIDS on women’s lives paints an alarming picture of gender inequality and policy underrepresentation which doesn’t spare seronegative women and is therefore a broader issue in Sub-Saharan African countries (UNAIDS, 2019).

Being HIV positive has negative outcomes for women’s family life and their ability to form relationships; women’s seropositivity seems to elicit far more negative responses than men’s. Owusu (2020) operated a gender-based comparison of quality of life among men and women living with HIV in the Eastern Region of Ghana: this included family relations, health and other factors. A significant difference in experience among genders emerged, with women reporting far bigger difficulties than their male counterparts. On average, the women reported being treated worse by their family members; some reported being rejected by their HIV-negative husbands, which included separation

from their children. Others reported difficulties interacting with their extended family members who knew about their status. This hostile behavior was not observed in any of the HIV-positive males who were interviewed. With one exception, they all reported having satisfactory relationships with their spouse and family members. Moreover, two-thirds of the men were either married or dating, while only one-sixteenth of the women were married or cohabiting; two of the women reported having been divorced by their husbands after they disclosed their serostatus to them.

HIV has a negative impact on women's health. Owusu reported that HIV-positive women reported more weaknesses and a greater number of co-morbidities than their male counterparts. This included diarrhea followed by malaria, cough, chest pains, dizziness, high blood pressure and asthma. Additionally, Pathai et al. (2013) found that HIV was associated with premature development of frailty, a clinical condition whose symptoms include weight loss, exhaustion, weak grip strength and slow walking time and is typically observed in geriatric patients. Operating a case control study of five hundred individuals from South Africa, the researchers found that seropositive individuals were more likely to be prematurely frail than seronegative ones (19,4% vs. 13,3%); moreover, women seemed to be more sensitive to frailty with increasing age than males: the former were 2,55 times more likely to be frail with a ten-year increase in age, while the latter's likelihood of being frail was 1,29 with an equal increase in age. Women who are HIV-positive may also experience reduced fertility, as was found by (Marston et al., 2018). In their study, they compared fertility ratios of HIV-positive and HIV-negative women of the same age. They found that HIV-positive women under the age of thirty-five were 10% to 40% less fecund than HIV-negative women.

Govindasamy et al. (2020) also found that HIV-positive women were less likely to successfully seek healthcare than their male counterparts. For instance, the seropositive women reported greater difficulties in keeping their hospital appointments and following their antiretroviral treatment regime; this was due to women carrying the bulk of the household responsibilities (all the interviewees who reported that childcare interfered with keeping hospital appointments were women), as well as the higher amount of stigma surrounding female seropositivity, which often forced women to hide their medication. Moreover, higher levels of unemployment made HIV-positive women less likely to be able to afford trips to the hospital. Finally, the women in the study were receiving less financial support from their adult children than males, and often could not afford to pay medication out of pocket.

Owusu also analyzed the stigma and discrimination related to a woman being HIV-positive. All the women in his study who had shared their HIV status with their extended family reported facing discrimination from them. This included being isolated within their own house, i.e. being forced to

sleep outside and being excluded from family meals (something that Ghanaian tradition usually dictates), being criticized and insulted from family members. Two women reported being thrown out of their houses by their families due to their HIV status. The stigma regarding women's HIV status also affected their access to accommodation and employment. Those who lived in rented apartments reported living in fear that their status would be found out, which they were sure would lead to eviction. These difficulties were mirrored by the difference in living conditions among the men and women interviewed for Owusu's study. Compared to the women, the men were more likely to live in secured households, less likely to live in extended family housing and to share space with members of their household. Women living with HIV were also more susceptible to living in sub-standard conditions, such as living without running water, a toilet, electricity or kitchen facility. Some women reported that their housing conditions interfered with their ability to take medication. There was no such report from any of the men.

The seropositive women in Owusu's study also reported difficulties finding a job due to discrimination. Two of the women mentioned that potential clients of their shop didn't buy from them based on the way they looked, suspecting that looking pale or thin meant that they were HIV positive. Some said that they lost business after their HIV status was made public by their family members. As a result of higher unemployment and less social and financial support due to stigma, a higher proportion of women reported being food insecure compared to their male counterparts. These interviewees also said that food insecurity was an obstacle to taking antiretroviral medication.

HIV has been proven to negatively impact young people's wellbeing. This factor, which can be defined as "thriving across multiple life domains", has been linked to young people's performance on the job market and their incentive to accumulate human capital. For this reason, it is today held in high regard by policymakers when implementing multisectoral interventions. The effects of HIV/AIDS on young people's wellbeing in South Africa have been investigated by Pathai et al (2013).; they interviewed a group of people aged fifteen to twenty-four who came from the region of KwaZulu-Natal, which is particularly affected by the HIV epidemic. It was reported that HIV decreased the interviewees' sense of belonging to their community, the respect they received from their family members and their sense of self-acceptance and personal worth. In the study, it was said that girls were more vulnerable to the last factor (sense of acceptance and worth) because of gender specific reasons. Namely, the girls' "perceived failure in upholding gender norms" undermined their and others' perception of them; the younger girls expressed fear at being sexually rejected by boys.

Women in Sub-Saharan Africa, especially young girls, are more exposed to HIV infection than men due to a combination of social, cultural and economic factors (UNAIDS, 2019). It is necessary to

analyze these factors in order to outline efficient policy contributions to combat HIV infection among young girls.

The role of stigma and misconceptions surrounding HIV in Sub Saharan African societies has been outlined as a major driver of HIV infection. Women are here more exposed to such stigma because of widespread cultural beliefs that HIV and other STIs are “feminine diseases”. Sano et al. (2016) have signaled that this and other misconceptions about HIV heighten the probability of risky sexual behavior, such as early sexual debut, lack of contraception use and an inability to negotiate safer intercourse for women.

Butts et al. (2017) conducted a study in order to assess the perceived contributors of HIV risk, as well as the reasons for the persistence of high HIV prevalence among the group, for adolescent girls and young women in Zambia. The study was based on focus group discussions, with discussion topics being presented as open-ended questions to groups of young women recruited from Zambian districts with the highest HIV prevalence in the country. A majority of participants singled out stigma as a major contributor to the persistence of HIV among Zambian AGYW. Fear of rejection from one’s family and community were described as a significant obstacle to HIV testing, disclosure of HIV status and treatment. Moreover, the participants reported that young women being childless was seen negatively in their community: cultural norms encouraged women to have many children and criticized those who didn’t. This is also reflected in the stigma surrounding condom use within a relationship; it was frowned upon and seen as a sign of mistrust towards one’s partner.

It has also been reported that gender inequalities and gender-specific expectations towards women make them more vulnerable to contracting HIV than their male counterparts. The limitations imposed on women by a strongly patriarchal society such as the one that exists in many regions of Sub-Saharan Africa exposes them to an increased risk of HIV. For instance, the interviewees in Butts et al. were quoted as saying that women’s forceful submission within a couple was dangerous; they explained that women had no bargaining power when it came to sexual relations and could not refuse to have sex with their partners. This, coupled with society’s encouragement of male promiscuity, was thought to greatly expose young women to HIV infection. Additionally, Mtenga et al. (2015) argued that gender norms were the main HIV drivers among married and cohabitating couples in south-eastern Tanzania, having found that respondents who believed that a woman shouldn’t be allowed to refuse sex from her husband even if she knew he had a disease were 1,51 times more likely to be HIV positive than those who didn’t. There is ample literature regarding the importance of women’s bargaining power over sex for HIV prevention: (Gerritzen, 2016; Madiba & Ngwenya, 2017) emphasized the need for a more equal decision-making power over condom use within marriage, along with negotiation of safe sex and rejection of forced or non-consensual sex.

Age disparate sex has also been described as a factor of HIV risk for women. Due to certain cultural standards of sexual purity, older men often prefer to marry or take part in sexual relations with girls in their late teens, especially in rural areas and in certain cultures. This was believed to heighten HIV risk for adolescent girls and young women, as younger girls were sought after by more sexually experienced men who were more likely to be HIV positive (Butts et al.). Women's inability to refuse sexual relations with their husband or significant other wasn't the only form of sexual violence that was reported in Butts et al. Interviewees were quoted as saying that "many girls are forced to have sex by older boys who [...] are HIV positive", and "when you go to look for employment [...] some people request you to have sexual relations with them in exchange for employment [...] this is very common". This was thought to increase HIV risk.

Another leading factor for HIV infection is intimate partner violence (IPV) and sexual and gender-based violence (SGBV). Research shows that there are gender disparities in sexual and gender based violence among 15-24 year olds in many Sub Saharan African regions (Igulot, 2022); moreover, the Zambian women who were interviewed in Butts et al. said that physical violence and IPV was extremely recurrent in their relationships and moderately accepted by society, with some women believing that violence was a sign of love. The World Health Organization lists the outcomes of SGBV and IPV as physical trauma, psychological trauma and fear. All of these have, as a consequence, a higher risk of contracting sexually transmitted infections such as HIV (World Health Organization, 2013).

The risk of HIV infection associated with IPV has been linked to the broader discourse on power disparities within a relationship. For instance, violence was one of the three "pathways" through which the connection between power disparities and women's health was analyzed in Conroy et al. (2016). Male dominance over women was found to limit the latter's ability to acquire knowledge about health, make health-related decisions and take action to improve health. Using data from almost two hundred thousand sexually active women from twenty two Sub-Saharan African countries, Tsai & Subramanian (2012) found that women's condom use at last sexual relation was negatively related with their level of agreement with the statement "it is appropriate for a husband to beat his wife". IPV was also thought to have a negative influence over women's use of healthcare services. The link between intimate partner violence and HIV risk for AGYW was also studied by Durevall & Lindskog (2012), who analyzed it under the lens of income inequalities in Malawi. They found a strong association between income inequality and the risk of HIV infection; they concurrently found that economic inequality was associated with riskier sexual behavior, i.e. lower levels of abstinence and more partners per woman. Economic inequality was also found to have a weaker impact on HIV risk

when controlling for gender violence, which the researchers interpreted as a confirmation that IPV is a driver of HIV for women.

3. Chapter 3 - Evidence of successful multilevel interventions on girls' HIV prevention

3.1. Understanding multilevel interventions

A “multilevel intervention” is a strategy of public policy designed to target an issue by addressing all of its causes simultaneously (Paskett et al.). Multilevel interventions are widely used in the health sector to tackle health disparities among social groups; the U.S. National Institute on Minority Health and Health Disparities describes “health disparities” as “a health difference that adversely affects disadvantaged populations on the basis of one or more of the following health outcomes: (1) higher incidence or prevalence of disease; (2) earlier onset or faster progression; (3) poorer daily functioning or quality of life; (4) premature or excessive mortality (5) greater global burden” (Alvidrez et al., 2019). The underpinning belief is that health disparities stem from deeply rooted social and structural determinants of health, such as gender or socioeconomic status, which are profoundly intertwined with the physical environment in which an individual lives, and their access to healthcare. These traits cannot be tackled at the individual level alone (Brown et al., 2019); instead, efforts to combat health disparities are increasingly being aimed at tackling all of the levels that influence health status, bearing in mind the complex interplay between them. Due to their structural approach and the effort devoted to understanding the context in which health disparities occur, multilevel interventions are believed to be very effective, especially in fostering behavioral change.

The disproportionate HIV burden borne by women fits the NIMHDS definition of a health disparity: data shown in previous sections of this work highlight how not only is HIV prevalence higher for women in Sub Saharan Africa, but their quality of life is also significantly more affected by seropositivity than men's. Moreover, it has been stated throughout this thesis that gender inequalities in HIV prevalence are the product of a combination of risky sexual behaviors; because of this behavioral change is a major objective of HIV prevention policies. The concluding chapter of this thesis will argue that, due to their positive effects on health disparities and behavioral change, multilevel interventions can represent an ideal approach to the issue of HIV among young women.

3.2. A review of the state of the art of multilevel interventions in HIV prevention

Due to their complex and varied nature, multilevel interventions span across vastly different areas, from education to family to healthcare, and tackle HIV prevention through multiple channels simultaneously. This section will provide a review of existing multilevel interventions for young

women's HIV prevention in Sub-Saharan Africa, grouping them by "target area" and discussing their level of success.

3.2.1. Search methods

For this section, the author used the platforms Web of Science and Jstor, employing several keywords in the advanced search tool to obtain analyses of HIV prevention interventions carried out in Sub-Saharan Africa. The keywords were "HIV/AIDS," "Africa", "women" and "multilevel intervention". The keywords "multisectoral" and "structural" were included as alternatives to "multilevel" to make the review as exhaustive as possible. Moreover, the search was restricted to the publications that had "HIV/AIDS" in their title, to avoid papers that mentioned the issue but focused on other subjects. Of the 1060 results obtained from the entries, the author discarded: the papers that regarded Northern African countries; the papers that analyzed the same intervention but were written by different authors (the most recent publication was preferred); the papers that had been published multiple times over the years (the most recent publication was chosen); intervention protocols; feasibility studies and papers that described the implementation of an intervention, of which the follow-up results could not be found. Then, after a more detailed review, I discarded papers covering interventions that did not have any benefit on young women, or whose target area has not been covered in this thesis (i.e. transactional sex). In the end, seventeen papers were obtained and used in the following section.

3.2.2. Gender-based violence

One of the most widely used channels to tackle the HIV epidemic through multilevel interventions is gender-based violence, particularly intimate partner violence. As described above, intimate partner violence is a confirmed driver of HIV infection among women as it decreases women's ability to negotiate condom use and practice safe sex, among other things. Therefore, UNAIDS has made the elimination of sexual and gender-based violence a core objective of the fight against HIV; this point has been most recently reiterated at the 68th UNAIDS Commission on the Status of Women, held in Geneva and New York in March 2024 (UNAIDS). Therefore, specialists have been calling for policy approaches to HIV prevention that include the targeting of gender disparity and violence in their programs. Several studies have been recently developed to evaluate multilevel interventions addressing gender norms with the aim of empowering women in their sex lives with positive results. For instance, the Intervention With Microfinance for AIDS and Gender Equity (*IMAGE*) Study assessed the impact of a program which involved microfinance for underprivileged women and interactive gender and HIV-prevention guidance. Conducted in the rural province of Limpopo, South Africa, over two years, the study found that the intervention had reduced the participants' intimate partner violence levels by 55%. Among intervention participants aged 15-24, the intervention was

also correlated with remarkable increases in HIV testing uptake, improved HIV communication within the family, and a decrease in the number of unprotected sex with multiple partners. The women in the study also reported increased feelings of self-empowerment, financial confidence, and participation in community action, all of which were secondary outcomes of the study and are thought to lead to reduced violence. Despite poor follow-up due to dwindling funding, which hindered the chance of the study to have an impact on the broader community in Limpopo, the intervention accomplished a good deal of mobilization regarding HIV and gender-based violence, and *IMAGE* has now been expanded to cover 15000 households (Kim et al., 2007). Intimate partner violence in relation to HIV has also been tackled with behavior-oriented approaches aimed at improving the quality of relationships. One of these programs was *Stepping Stones*, which was set in the Eastern Cape province of South Africa and was implemented over the course of two years. *Stepping Stones* attempted to improve sexual health, including HIV prevalence, as well as reduce risky sexual behavior and intimate partner violence by building more gender-equal relationships among the participants. A randomized controlled trial was carried out to evaluate the impact of the intervention; it showed that the intervention was ineffective at reducing HIV prevalence, but it did have a positive impact on the behavior of the men, who reported reduced risky sexual behavior and perpetration of violence against their partners (Jewkes et al., 2008). A third channel through which the gender inequalities underlying intimate partner violence were tackled is at the community level. Due to the complexity of implementing and evaluating these studies, community-level interventions are probably the most ambitious of multilevel approaches; for this reason, only few of them have been successfully implemented. Among these, the *SASA!* study stands out as having achieved significantly positive results. *SASA!* was initially implemented in Kampala, Uganda in 2007 to reduce HIV-risk behavior and prevent violence against women. *SASA!* endeavored to reach its goal by changing community attitudes, norms that disparaged women and behaviors that resulted in gender inequalities, especially those that fostered gender-based violence. Awareness of the complex interplay of factors that lead to gender-based violence led to a variety of community members being involved in the study, i.e. community activists, religious and governmental leaders, police officers and healthcare providers. Articulated in four phases, the study involved an increasing number of community members at each stage, promoting a critical discussion of gender inequalities regarding intimate partner violence and sexual risk behaviors, and encouraging positive actions to rectify them through over 11000 different activist-led multi-media initiatives. The follow-up evaluation showed that *SASA!* obtained remarkably positive results in all its primary outcomes, achieving reductions in the social acceptance of gender inequality and intimate partner violence at the community level, as well as reported cases of domestic violence and risky sexual behaviors. It also seemed to improve community response to cases of

domestic violence. As a result, *SASA!* has since been implemented in fifteen other Sub-Saharan African countries (Abramsky et al., 2014).

In reviewing the landscape of multilevel interventions for HIV prevention, it is important to consider not only successful examples but also ones that experienced shortcomings and proved to be a setback in the researchers' efforts. Including studies with null or negative results serves multiple purposes: firstly, it balances the assessment of the field of multilevel interventions as a whole; secondly, it provides insight into the challenges of implementing such complex approaches, which will prove useful for the following sections of this thesis; lastly, understanding the reasons for the failure of certain interventions helps in appreciating the factors that led to the success of the other interventions that are here presented. A notable example of a "failure" among community-based interventions is *One Man Can*, operated by a gender justice organization in Johannesburg, South Africa; this intervention aimed at reducing men's perpetration of violence against women. The intervention was implemented in a particularly impoverished township of Johannesburg; this choice was informed by the researchers' belief that conditions of poverty, food insecurity and unemployment might make men feel "emasculated" and motivate their violence towards women. The intervention employed a multilevel approach, carrying out various activities such as recruitment of activists from among the population, peer outreach through the activists and local advocacy for change. The themes of the community mobilization activities included gender and violence, gender roles, gender and HIV, and others. The advocacy component was also aimed at helping governments to implement community violence prevention measures. The 24-month follow-up study showed that there was no significant impact on any of the primary outcomes of the study, with the men reporting no change in their past year's use of intimate partner or sexual violence. There was also no change in their reported perpetration of non-partner rape, gender attitudes or social cohesion. The very high levels of men's use of intimate partner violence, linked to the context of serious instability in which the Johannesburg township lay, persuaded the researchers that more intensive efforts, perhaps aided by psychotherapy, should have been put into place to have an impact on the violent men of the community. The researchers mentioned examples of successful interventions of a similar type to *One Man Can*, such as the aforementioned *Stepping Stones*, highlighting the higher level of interactivity of the approach compared to *One Man Can* (Mokganyetji et al., 2015).

3.2.3. Stigma and misinformation

Another channel through which the HIV epidemic in young women has been addressed is that of the misinformation surrounding the virus, which has already been highlighted here as a major factor of risk for HIV infection as an informer of risky behavior. The underpinning rationale for these studies

is that HIV preventive behavior is influenced by the individual's knowledge of HIV, their motivation to avoid risky sexual behaviors, and their ability to do so. Therefore, interventions which focus on improving at-risk individuals' levels of information and/or self-esteem might have practical benefits such as increased condom use and more positive attitudes towards the virus (Fisher & Fisher, 2000). Stephenson et al., (2011) showed how information on family planning that is catered to the needs of those exposed to HIV, for example individuals whose partner is positive, significantly improves condom use. Bachanas et al., (2016) demonstrated how the same approach has the additional benefit of improving testing uptake for partners and serostatus disclosure when implemented in the setting of a health clinic. A notable example of multilevel intervention aimed at changing behavior through information and motivation is *CyberSenga*, which was implemented in the province of Mbarara, Uganda in 2015. Conceived to target high school students, both sexually active and otherwise, and delivered to its participants through the internet, *CyberSenga* was aimed at achieving HIV prevention by teaching healthy sexual behavior in a familiar context. "Senga" is a Ugandan term used to indicate the paternal aunt, a figure who guides female members of the household regarding issues such as health and sexuality. The program, narrated by a virtual "Senga" through vignettes, presented facts about HIV, focused on problem-solving and communication training, then addressed the aspect of motivation, i.e. the motivation to have sex. Finally, it discussed structural issues related to HIV and youth in Uganda, including sexual coercion, economic insecurity, and more. The 12-month follow-up to the intervention, which compared youths who had completed the *CyberSenga* program to a control group, revealed that information about HIV had significantly improved for the first group, as well as motivation to use condoms. The improvements were observed especially in abstinent participants, who had lower baseline scores for condom motivation and knowledge but reported more significant improvements than their sexually active counterparts. This was of particular importance due to the cultural undesirability of the sex discourse in Uganda, especially among the abstinent (Ybarra et al., 2015). Another notable example of the reduction of HIV stigma through information delivered on the internet is *Protect Your Family*, which was implemented in the Mpumalanga province of South Africa among HIV-positive pregnant women in 2018. The intervention aimed at reducing the women's self-inflicted stigma (i.e. fear of being shamed if they disclosed their serostatus to healthcare workers) by enhancing the perinatal care they were already receiving in healthcare facilities: the intervention was composed of antenatal and postnatal video sessions, as well as in-presence health workshops. It proved useful in empowering women to be more open about HIV in their relationships, as well as HIV prevention strategies based on correcting behavior and fighting stigma have also been proven to be successful when addressing power imbalances in relationships (Peltzer et al., 2018). Jones et al.

(2014) provided an evaluation for the *Partner Project*, which addressed risky HIV behavior among serodiscordant couples; they found that informing and empowering partners about HIV decreased intimate partner violence and increased condom use. Peltzer et al., (2018) evaluated the impact of an intervention implemented in a domestic violence shelter in 2010 in Johannesburg, South Africa, which proved effectful in increasing HIV knowledge and decreasing misperceptions, as well as incrementing the intention of avoiding HIV risk and the capability to utilize condoms for all of its ninety-seven young female participants. The intervention had multilevel characteristics as the workshops through which it was delivered analyzed issues of HIV infection through the lenses of power imbalances within relationships, gender roles, and women's knowledge of sexual practices. Moreover, Wingood et al., (2013) showed that tailoring behavioral interventions on a social group's gender and cultural characteristics is effective in reducing self-reported stigma and risky sexual behavior in vulnerable populations. As regards community mobilization interventions to improve HIV knowledge, Konate et al. (2011) reported that combining community-level HIV counselling and training sessions with primary care distribution sensibly increases condom use and slows down HIV infection compared to national averages. Pettifor et al., (2018) provided results from a cluster randomized trial to expose the results of a community mobilization intervention for HIV prevention carried out in South Africa over six months. The program achieved behavioral results by creating a sense of "shared concern" surrounding HIV and encouraging social cohesion and critical consciousness in order to obtain a better-informed, more cooperative community; the behavioral component of the intervention was integrated with modules covering structural issues which cause risky behavior, such as high unemployment, violence and alcohol use. The researchers speculated that, if successful, the intervention would lead the community to make healthier sexual decisions. The intervention proved successful in that both men and women involved in the study reported believing less harmful gender norms. However, it did not have an impact on HIV risk behavior or the perpetration of intimate partner violence; the researchers mentioned studies which had greater impact on these aspects and highlighted how they were specifically targeted at reducing IPV (such as the aforementioned *SASA!*) or longer in duration (such as *Stepping Stones*).

3.2.4. Education

Evidence of successful multilevel interventions for HIV prevention in Sub Saharan Africa also exist within the context of school education. Hallfors et al., (2015) analyze the positive effects of a structural intervention carried out in Zimbabwe in 2015. Consisting in school subsidies in the form of tuition, uniforms and school supplies for 328 orphaned adolescent girls, the intervention tackled the socioeconomic factors that lead girls to drop out of school with the hopes of achieving higher school attendance. It was speculated that increased school attendance for girls would have positive

effects on the prevalence of HIV in the community as a whole, as girls who don't attend school have a higher probability of getting married early, which doubles their HIV risk (Hallfors et al., 2013). Although the 5-year follow-up survey showed no differences in HIV prevalence with respect to baseline data, the girls who had been part of the intervention were less likely to drop out of school and had achieved almost an additional year of schooling relative to the control group. They also reported being better fed and having a higher quality of life. Mathews et al. (2016) similarly analyze the effects of *PREPARE*, a multisectoral school-based HIV intervention, carried out in 2016 in the Western Cape of South Africa. The intervention aimed to delay sexual debut, increase condom use and reduce the number of sexual partners in adolescents. It included also an educational component as well as a school health service and health safety training. Researchers cooperated with the Western Cape Department of Health to implement the school health service, and with local clinics to promote healthy behavior. Although *PREPARE* improved the participants' knowledge of HIV, it had no other impactful effects on the timing of sexual debut, sexual risk behavior or condom use. The researchers speculated that this was due to the influence of culture on the sex lives of adolescents, although they did not address the cultural aspect in their study.

3.2.5. Cash transfers

Policymakers and development partners in Sub-Saharan Africa have used multilevel interventions for HIV prevention through social protection programs. Yotebieng et al. (2017) demonstrate the benefits of cash transfers to achieve care retention in HIV-positive expectant mothers, therefore potentially reducing mother-to-child transmission. Weiser et al., (2015) evaluate the effect of *Shamba Maisha*, a remarkably effective multicomponent agricultural intervention among HIV-positive adults to measure the effect of an improved livelihood on HIV morbidity and mortality. The choice of tackling food availability to improve HIV outcomes was motivated by various studies, which have found that food insecurity reduces adherence to antiretroviral therapy (Weiser et al., 2007), worsens mental health and nutritional status (Tsai et al., 2012); these are all factors which increase HIV mortality. The study was carried out in two regions of Kenya and targeted HIV-positive farmers, and comprised three components implemented simultaneously: a loan scheme to purchase farming equipment; an ad hoc water pump to allow farmers to irrigate year-round; and agricultural and financial training to improve farming outcomes. The 12-month follow-up survey revealed that participants had reduced their food insecurity progressively, improved frequency of food consumption. HIV clinical outcomes were also significant: participants to the intervention had a higher immune cell count than the control group; at the same time, the percentage of virologically suppressed participants increased remarkably (from 51% to 79%).

3.3. Success and limitations of multilevel interventions

The benefits of multilevel interventions in addressing health disparities are agreed upon by scholars. By tackling the wide and multifaceted socio-ecological issues surrounding health disparities, they allow treatment to reach social groups, which would have otherwise been disadvantaged due to their status. For these people, individual-level interventions have often proven unsuccessful. Brown et al. (2019) highlighted how there is limited evidence that individual-level health interventions have sustained effects over the years, explaining that approaches aimed at modifying the behavior of single people often aren't enough to reduce health disparities if the combination of cultural, economic, and social factors underpinning the behavior remain unchanged. Instead, the success of multilevel interventions lies in their tackling of structural determinants of health disparities. Among these determinants, scholars have found that multilevel interventions that tackle one or more levels (i.e. individual, interpersonal, community, etc.) and domains of influence (i.e. physical, sociocultural, healthcare, etc.) simultaneously are effective in fostering environments that support sustained behavior change. This is evident from multilevel health interventions conducted all over the world (Foltz et al., 2012; Singh et al., 2010); in the context of this thesis, it is exemplified by *SASA!*, an intervention that addressed gender-based violence for HIV prevention at both the interpersonal and community level through the lens of economic and social disparities among genders. *SASA!* is also an example of how achieving authentic community and stakeholder engagement makes multilevel interventions more effective than individual level ones. As Brown et al., (2019) showed, the involvement of the community as a whole, as well as every actor who holds power within that community, is fundamental to better develop, implement and sustain interventions that tackle structural determinants of health disparities. *SASA!*, like other studies (Castillo et al., 2019; Grubbs et al., 2013), likely achieved results by involving religious leaders as well as community activists in the implementation of the intervention. These interventions show that community stakeholders can be fundamental in advocacy and policy translation in communities affected by health disparities. Another explanation for the success of multilevel health interventions over individual-level ones is that they are often disease-agnostic, meaning they tackle common factors of risk that lead to multiple issues. In the context of this thesis, this was evident from Stephenson et al., (2011), who showed that family planning efforts can reduce the prevalence of HIV and other STIs at the same time. Disease-agnostic interventions have also shown potential in the field of mental health (Brotman et al., 2016) and income disparities (Hamad & Rehkopf, 2015).

Developing and implementing structural interventions also poses several challenges. Firstly, identifying the various socio-ecological factors that drive health risks and foster disparities among social groups can be complex. The levels of influence are often dynamic and interconnected; this complexity makes measuring the impact of interventions harder, particularly in the short term. Moreover, standard methods of measurement may not be enough to evaluate the impact of a certain intervention on disparities. The lack of a standardized definition of structural determinants and criteria for classifying groups of relevant interventions complicate the comparison and evaluation of the impact interventions on health disparities. Although data, such as health records and registries, often exists, there often are limitations in using them to evaluate structural interventions. This is because evaluators may not have had a role in the design or implementation of the intervention, therefore they lack the measures to determine causal relations. Multisectoral interventions also use large data sets which span multiple areas, therefore the harmonization of data is also a concern; scholars have highlighted the need for a common set of “minority health and disparities-related data elements” (Brown et al., 2019) that can be gathered across health and non-health sectors. Another limitation related to the implementation of multilevel interventions is the cost-effectiveness of the approach. Tackling structural determinants that have to do with poverty, housing and limited education requires significant investments at national and community levels. Funding is, however, often allocated in restricted ways, which impede innovation, even in the cases in which the potential benefits of an intervention have been recognized. Furthermore, the window of time needed to carry out adequate follow-up evaluations often extends far beyond ordinary funding cycles. Usually, research grants span three to five years; according to scholars, this is not enough to effectively evaluate the long-term impacts of structural interventions which sometimes require decades for health outcomes to be observed. Finally, although the evidence base for structural interventions to address health disparities is expanding, data is still lacking on the replicability and sustainability of successful interventions. Moreover, the rise of evidence-based strategies has not been followed by data to understand why a certain intervention was adopted in a certain geopolitical context. The expensiveness of multilevel interventions also represents a challenge, as each community must decide which intervention may offer the highest returns in population health improvement and reduction in health disparities. To sum up, there is a lack of information on the trade-offs for picking one intervention over another in a certain community.

Conclusion

This thesis looked into the benefits of multilevel interventions for HIV prevention in young women in Sub-Saharan Africa. Due to the fact that they tackle so-called “structural determinants of health disparities,” multilevel interventions are especially effective on social groups which are affected by socioeconomic disparities within a society; this is the case of young women in Sub-Saharan Africa. Despite the fact that the region has experienced the greatest amount of progress in the world in the fight against HIV, its young women still bear a disproportionate burden of the HIV epidemic. This thesis has explained that this is due to a complex interplay of social, cultural, and economic factors that put young women at a disadvantage compared to their male counterparts. This is reflected in a range of concrete issues, which exacerbate the challenges faced by girls with regards to HIV. For instance, widespread sexist norms expose girls to intimate partner violence, which is a confirmed driver of HIV. Even in non-violent relationships, disparaging gender norms put women in a condition of submission to their male partner, which hinders their freedom to make health choices for themselves. Moreover, harmful gender roles result in low school attendance rates and high dropout rates for girls; this exposes them to early marriage, another driver of infection. Gender-based stigma and misinformation surrounding seropositivity also disproportionately affects girls: this leads to higher discrimination against them if they contract HIV, which results in a number of critical issues such as social rejection, homelessness, and unemployment. However, multilevel interventions have shown promise in reducing the structural determinants that lead to these issues. By tackling the disparaging social norms that expose women to HIV, multilevel interventions address the HIV health disparity while also keeping the socioecological factors that surround it under control, potentially paving the way for closing the gap that separates Sub-Saharan African young women from their counterparts when it comes to HIV prevention.

References

- Abramsky, T., Devries, K., Kiss, L., Nakuti, J., Kyegombe, N., Starmann, E., Cundill, B., Francisco, L., Kaye, D., Musuya, T., Michau, L., & Watts, C. (2014). Findings from the SASA! Study: A cluster randomized controlled trial to assess the impact of a community mobilization intervention to prevent violence against women and reduce HIV risk in Kampala, Uganda. *BMC MEDICINE*, *12*, 122. <https://doi.org/10.1186/s12916-014-0122-5>
- Ali, M. M., Cleland, J., & Shah, I. H. (2004). Condom use within marriage: A neglected HIV intervention. *Bulletin of the World Health Organization*, *82*(3), 180–186.
- Alvidrez, J., Castille, D., Laude-Sharp, M., Rosario, A., & Tabor, D. (2019). The National Institute on Minority Health and Health Disparities Research Framework. *American Journal of Public Health*, *109*(S1), S16–S20. <https://doi.org/10.2105/AJPH.2018.304883>
- Anthropology and Public Health: Bridging Differences in Culture and Society*. (2009). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780195374643.001.0001>
- Appiah, E. N. (2018). Female Labor Force Participation and Economic Growth in Developing Countries. *Global Journal of Human-Social Science*, *18*(E2), 1–6.
- Bachanas, P., Kidder, D., Medley, A., Pals, S. L., Carpenter, D., Howard, A., Antelman, G., DeLuca, N., Muhenje, O., Sheriff, M., Somi, G., Katuta, F., Cherutich, P., & Moore, J. (2016). Delivering Prevention Interventions to People Living with HIV in Clinical Care Settings: Results of a Cluster Randomized Trial in Kenya, Namibia, and Tanzania. *AIDS and Behavior*, *20*(9), 2110–2118. <https://doi.org/10.1007/s10461-016-1349-2>
- Balk, D., Pullum, T., Storeygard, A., Greenwell, F., & Neuman, M. (2004). A spatial analysis of childhood mortality in West Africa. *Population, Space and Place*, *10*(3), 175–216. <https://doi.org/10.1002/psp.328>

- Beegle, K., Dehejia, R. H., Gatti, R., & Krutikova, S. (2008). *The Consequences of Child Labor: Evidence from Longitudinal Data in Rural Tanzania* (SSRN Scholarly Paper 1233053).
<https://papers.ssrn.com/abstract=1233053>
- Brotman, L. M., Dawson-McClure, S., Kamboukos, D., Huang, K.-Y., Calzada, E. J., Goldfeld, K., & Petkova, E. (2016). Effects of ParentCorps in Prekindergarten on Child Mental Health and Academic Performance: Follow-up of a Randomized Clinical Trial Through 8 Years of Age. *JAMA Pediatrics*, *170*(12), 1149–1155.
<https://doi.org/10.1001/jamapediatrics.2016.1891>
- Brown, A. F., Ma, G. X., Miranda, J., Eng, E., Castille, D., Brockie, T., Jones, P., Airhihenbuwa, C. O., Farhat, T., Zhu, L., & Trinh-Shevrin, C. (2019). Structural Interventions to Reduce and Eliminate Health Disparities. *American Journal of Public Health*, *109*(S1), S72–S78.
<https://doi.org/10.2105/AJPH.2018.304844>
- Butts, S. A., Parmley, L. E., Alcaide, M. L., Rodriguez, V. J., Kayukwa, A., Chitalu, N., Weiss, S. M., & Jones, D. L. (2017). Let us fight and support one another: Adolescent girls and young women on contributors and solutions to HIV risk in Zambia. *INTERNATIONAL JOURNAL OF WOMENS HEALTH*, *9*, 727–737. <https://doi.org/10.2147/IJWH.S142232>
- Buvinic, M., Gupta, M. D., & Casabonne, U. (2009). Gender, Poverty and Demography: An Overview. *The World Bank Economic Review*, *23*(3), 347–369.
- Castillo, E. G., Ijadi-Maghsoodi, R., Shadravan, S., Moore, E., Mensah, M. O., Docherty, M., Aguilera Nunez, M. G., Barcelo, N., Goodsmith, N., Halpin, L. E., Morton, I., Mango, J., Montero, A. E., Rahmanian Koushkaki, S., Bromley, E., Chung, B., Jones, F., Gabrielian, S., Gelberg, L., ... Wells, K. B. (2019). Community Interventions to Promote Mental Health and Social Equity. *Current Psychiatry Reports*, *21*(5), 35. <https://doi.org/10.1007/s11920-019-1017-0>

- Clark, S. J., Collinson, M. A., Kahn, K., Drullinger, K., & Tollman, S. M. (2007). Returning home to die: Circular labour migration and mortality in South Africa 1. *Scandinavian Journal of Public Health*, 35(69_suppl), 35–44. <https://doi.org/10.1080/14034950701355619>
- Cleland, J., Harbison, S., & Shah, I. H. (2014). Unmet Need for Contraception: Issues and Challenges. *Studies in Family Planning*, 45(2), 105–122. <https://doi.org/10.1111/j.1728-4465.2014.00380.x>
- Cohen, D. (2001). Joint Epidemics: Poverty and AIDS in Sub-Saharan Africa. *Harvard International Review*, 23(3), 54–58.
- Conroy, A. A., McGrath, N., van Rooyen, H., Hosegood, V., Johnson, M. O., Fritz, K., Marr, A., Ngubane, T., & Darbes, L. A. (2016). Power and the association with relationship quality in South African couples: Implications for HIV/AIDS interventions. *SOCIAL SCIENCE & MEDICINE*, 153, 1–11. <https://doi.org/10.1016/j.socscimed.2016.01.035>
- Cutler, D., Deaton, A., & Lleras-Muney, A. (2006). The Determinants of Mortality. *Journal of Economic Perspectives*, 20(3), 97–120. <https://doi.org/10.1257/jep.20.3.97>
- Dauda, R. S. (2018). Impact of HIV/aids epidemic on human capital development in West Africa. *The International Journal of Health Planning and Management*, 33(2), 460–478. <https://doi.org/10.1002/hpm.2486>
- de Sousa, J. D., Müller, V., Lemey, P., & Vandamme, A.-M. (2010). High GUD Incidence in the Early 20th Century Created a Particularly Permissive Time Window for the Origin and Initial Spread of Epidemic HIV Strains. *PLoS ONE*, 5(4), e9936. <https://doi.org/10.1371/journal.pone.0009936>
- Dillon, G., Hussain, R., Loxton, D., & Rahman, S. (2013). Mental and Physical Health and Intimate Partner Violence against Women: A Review of the Literature. *International Journal of Family Medicine*, 2013, 1–15. <https://doi.org/10.1155/2013/313909>

- Dixon, S., McDonald, S., & Roberts, J. (2002). The impact of HIV and AIDS on Africa's economic development. *BMJ (Clinical Research Ed.)*, 324(7331), 232–234.
<https://doi.org/10.1136/bmj.324.7331.232>
- Douek, D. C., Roederer, M., & Koup, R. A. (2009). Emerging Concepts in the Immunopathogenesis of AIDS*. *Annual Review of Medicine*, 60(Volume 60, 2009), 471–484.
<https://doi.org/10.1146/annurev.med.60.041807.123549>
- Durevall, D., & Lindskog, A. (2012). Economic Inequality and HIV in Malawi. *WORLD DEVELOPMENT*, 40(7), 1435–1451. <https://doi.org/10.1016/j.worlddev.2011.12.003>
- Dwyer-Lindgren, L., Cork, M. A., Sligar, A., Steuben, K. M., Wilson, K. F., Provost, N. R., Mayala, B. K., VanderHeide, J. D., Collison, M. L., Hall, J. B., Biehl, M. H., Carter, A., Frank, T., Douwes-Schultz, D., Burstein, R., Casey, D. C., Deshpande, A., Earl, L., El Bcheraoui, C., ... Hay, S. I. (2019). Mapping HIV prevalence in sub-Saharan Africa between 2000 and 2017. *Nature*, 570(7760), 189–193. <https://doi.org/10.1038/s41586-019-1200-9>
- Eludire, A. (2023). *THE IMPACT OF LABOR FORCE ON ECONOMIC GROWTH: A GLOBAL VIEW*.
- Ferreira, P. C., Pessôa, S., & Dos Santos, M. R. (2011). The Impact of Aids on Income and Human Capital. *Economic Inquiry*, 49(4), 1104–1116. <https://doi.org/10.1111/j.1465-7295.2010.00273.x>
- Fisher, J. D., & Fisher, W. A. (2000). Theoretical Approaches to Individual-Level Change in HIV Risk Behavior. In J. L. Peterson & R. J. DiClemente (A c. Di), *Handbook of HIV Prevention* (pp. 3–55). Springer US. https://doi.org/10.1007/978-1-4615-4137-0_1
- Floud, R., Fogel, R. W., Harris, B., & Hong, S. C. (2014). *Health, Mortality and the Standard of Living in Europe and North America since 1700* (R. Floud, R. W. Fogel, B. Harris, & S. C. Hong, A c. Di). Edward Elgar. <https://strathprints.strath.ac.uk/46348/>
- Foltz, J. L., May, A. L., Belay, B., Nihiser, A. J., Dooyema, C. A., & Blanck, H. M. (2012). Population-Level Intervention Strategies and Examples for Obesity Prevention in Children*.

Annual Review of Nutrition, 32(Volume 32, 2012), 391–415.

<https://doi.org/10.1146/annurev-nutr-071811-150646>

Gerritzen, B. (2016). Women's Empowerment and Hiv Prevention in Rural Malawi. *FEMINIST ECONOMICS*, 22(3), 1–25. <https://doi.org/10.1080/13545701.2015.1129067>

Gilbert, P. B., McKeague, I. W., Eisen, G., Mullins, C., Guéye-NDiaye, A., Mboup, S., & Kanki, P. J. (2003). Comparison of HIV-1 and HIV-2 infectivity from a prospective cohort study in Senegal. *Statistics in Medicine*, 22(4), 573–593. <https://doi.org/10.1002/sim.1342>

Gopalan, S. S., Mutasa, R., Friedman, J., & Das, A. (2014). Health sector demand-side financial incentives in low- and middle-income countries: A systematic review on demand- and supply-side effects. *Social Science & Medicine*, 100, 72–83. <https://doi.org/10.1016/j.socscimed.2013.10.030>

Govindasamy, D., Ferrari, G., Maruping, K., Bodzo, P., Mathews, C., & Seeley, J. (2020). A qualitative enquiry into the meaning and experiences of wellbeing among young people living with and without HIV in KwaZulu-Natal, South Africa. *SOCIAL SCIENCE & MEDICINE*, 258, 113103. <https://doi.org/10.1016/j.socscimed.2020.113103>

Grubbs, S. S., Polite, B. N., Carney, J., Bowser, W., Rogers, J., Katurakes, N., Hess, P., & Paskett, E. D. (2013). Eliminating Racial Disparities in Colorectal Cancer in the Real World: It Took a Village. *Journal of Clinical Oncology*, 31(16), 1928–1930. <https://doi.org/10.1200/JCO.2012.47.8412>

Hallfors, D. D., Cho, H., Iritani, B. J., Mapfumo, J., Mpofu, E., Luseno, W. K., & January, J. (2013). Preventing HIV by providing support for orphan girls to stay in school: Does religion matter? *Ethnicity & Health*, 18(1), 53–65. <https://doi.org/10.1080/13557858.2012.694068>

Hallfors, D. D., Cho, H., Rusakaniko, S., Mapfumo, J., Iritani, B., Zhang, L., Luseno, W., & Miller, T. (2015). The Impact of School Subsidies on HIV-Related Outcomes Among Adolescent Female Orphans. *JOURNAL OF ADOLESCENT HEALTH*, 56(1), 79–84. <https://doi.org/10.1016/j.jadohealth.2014.09.004>

- Hamad, R., & Rehkopf, D. H. (2015). Poverty, Pregnancy, and Birth Outcomes: A Study of the Earned Income Tax Credit. *Paediatric and Perinatal Epidemiology*, 29(5), 444–452.
<https://doi.org/10.1111/ppe.12211>
- Hunter, D. J. (1993). AIDS in sub-Saharan Africa: The epidemiology of heterosexual transmission and the prospects for prevention. *Epidemiology (Cambridge, Mass.)*, 4(1), 63–72.
- Ibrahim, A., Abdalla, S. M., Jafer, M., Abdelgadir, J., & de Vries, N. (2019). Child labor and health: A systematic literature review of the impacts of child labor on child's health in low- and middle-income countries. *Journal of Public Health (Oxford, England)*, 41(1), 18–26.
<https://doi.org/10.1093/pubmed/fdy018>
- Igulot, P. (2022). Sexual and Gender-Based Violence and Vulnerability to HIV Infection in Uganda: Evidence from Multilevel Modelling of Population-Level HIV/AIDS Data. *SOCIAL SCIENCES-BASEL*, 11(7), 301. <https://doi.org/10.3390/socsci11070301>
- IHME. (1990). *Global Burden of Disease Study—Deaths from HIV/AIDS* [dataset].
- ILO. (2018). *The impact of HIV and AIDS on the world of work: Global estimates*. International Labour Organization; ILO Cataloguing in Publication.
file:///C:/Users/flavi/Downloads/wcms_630244.pdf
- Jewkes, R., Nduna, M., Levin, J., Jama, N., Dunkle, K., Puren, A., & Duvvury, N. (2008). Impact of stepping stones on incidence of HIV and HSV-2 and sexual behaviour in rural South Africa: Cluster randomised controlled trial. *BMJ (Clinical Research Ed.)*, 337, a506.
<https://doi.org/10.1136/bmj.a506>
- Jones, A., Cremin, I., Abdullah, F., Idoko, J., Cherutich, P., Kilonzo, N., Rees, H., Hallett, T., O'Reilly, K., Koechlin, F., Schwartlander, B., de Zaluondo, B., Kim, S., Jay, J., Huh, J., Piot, P., & Dybul, M. (2014). Transformation of HIV from pandemic to low-endemic levels: A public health approach to combination prevention. *The Lancet*, 384(9939), 272–279.
[https://doi.org/10.1016/S0140-6736\(13\)62230-8](https://doi.org/10.1016/S0140-6736(13)62230-8)

- Jones, D., Weiss, S. M., Arheart, K., Cook, R., & Chitalu, N. (2014). Implementation of HIV prevention interventions in resource limited settings: The partner project. *Journal of Community Health, 39*(1), 151–158. <https://doi.org/10.1007/s10900-013-9753-2>
- Keele, B. F., Van Heuverswyn, F., Li, Y., Bailes, E., Takehisa, J., Santiago, M. L., Bibollet-Ruche, F., Chen, Y., Wain, L. V., Liegeois, F., Loul, S., Ngole, E. M., Bienvenue, Y., Delaporte, E., Brookfield, J. F. Y., Sharp, P. M., Shaw, G. M., Peeters, M., & Hahn, B. H. (2006). Chimpanzee Reservoirs of Pandemic and Nonpandemic HIV-1. *Science (New York, N.Y.), 313*(5786), 523–526. <https://doi.org/10.1126/science.1126531>
- Kharsany, A. B. M., & Karim, Q. A. (2016). HIV Infection and AIDS in Sub-Saharan Africa: Current Status, Challenges and Opportunities. *The Open AIDS Journal, 10*(1). <https://doi.org/10.2174/1874613601610010034>
- Kim, J. C., Watts, C. H., Hargreaves, J. R., Ndhlovu, L. X., Phetla, G., Morison, L. A., Busza, J., Porter, J. D. H., & Pronyk, P. (2007). Understanding the impact of a microfinance-based intervention on women's empowerment and the reduction of intimate partner violence in South Africa. *American Journal of Public Health, 97*(10), 1794–1802. <https://doi.org/10.2105/AJPH.2006.095521>
- Konate, I., Traore, L., Ouedraogo, A., Sanon, A., Diallo, R., Ouedraogo, J.-L., Huet, C., Millogo, I., Andonaba, J.-B., Mayaud, P., Van de Perre, P., & Nagot, N. (2011). Linking HIV prevention and care for community interventions among high-risk women in Burkina Faso—The ARNS 1222 «Yerelon» cohort. *Journal of Acquired Immune Deficiency Syndromes (1999), 57 Suppl 1*, S50-54. <https://doi.org/10.1097/QAI.0b013e3182207a3f>
- Kondo, N., Dam, R. M. van, Sembajwe, G., Subramanian, S. V., Kawachi, I., & Yamagata, Z. (2012). Income inequality and health: The role of population size, inequality threshold, period effects and lag effects. *J Epidemiol Community Health, 66*(6), e11–e11. <https://doi.org/10.1136/jech-2011-200321>

- Kondo, N., Sembajwe, G., Kawachi, I., Dam, R. M. van, Subramanian, S. V., & Yamagata, Z. (2009). Income inequality, mortality, and self-rated health: Meta-analysis of multilevel studies. *BMJ*, *339*, b4471. <https://doi.org/10.1136/bmj.b4471>
- Krieger, N. (2024). *Epidemiology and the People's Health: Theory and Context*. Oxford University Press.
- Levinsohn, J. A., McLaren, Z., Shisana, O., & Zuma, K. (2011). *HIV Status and Labor Market Participation in South Africa* (Working Paper 16901). National Bureau of Economic Research. <https://doi.org/10.3386/w16901>
- Madiba, S., & Ngwenya, N. (2017). Cultural practices, gender inequality and inconsistent condom use increase vulnerability to HIV infection: Narratives from married and cohabiting women in rural communities in Mpumalanga province, South Africa. *GLOBAL HEALTH ACTION*, *10*, 1341597. <https://doi.org/10.1080/16549716.2017.1341597>
- Mahal, A. (2004). Economic Implications of Inertia on HIV/AIDS and Benefits of Action. *Economic and Political Weekly*, *39*(10), 1049–1063.
- Marston, M., Zaba, B., & Eaton, J. W. (2018). Relative patterns of sexual activity and fertility among HIV positive and negative women—Evidence from 46 DHS. *PLOS ONE*, *13*(10), e0204584. <https://doi.org/10.1371/journal.pone.0204584>
- Marx, P. A., Alcabes, P. G., & Drucker, E. (2001). Serial human passage of simian immunodeficiency virus by unsterile injections and the emergence of epidemic human immunodeficiency virus in Africa. *Philosophical Transactions of the Royal Society of London. Series B*, *356*(1410), 911–920. <https://doi.org/10.1098/rstb.2001.0867>
- Mathews, C., Eggers, S. M., Townsend, L., Aaro, L. E., de Vries, P. J., Mason-Jones, A. J., De Koker, P., Appollis, T. M., Mtshizana, Y., Koech, J., Wubs, A., & De Vries, H. (2016). Effects of PREPARE, a Multi-component, School-Based HIV and Intimate Partner Violence (IPV) Prevention Programme on Adolescent Sexual Risk Behaviour and IPV: Cluster

Randomised Controlled Trial. *AIDS AND BEHAVIOR*, 20(9), 1821–1840.

<https://doi.org/10.1007/s10461-016-1410-1>

McCartney, G., Hearty, W., Arnot, J., Popham, F., Cumbers, A., & McMaster, R. (2019). Impact of Political Economy on Population Health: A Systematic Review of Reviews. *American Journal of Public Health*, 109(6), e1–e12. <https://doi.org/10.2105/AJPH.2019.305001>

McGaw, L., & Wameyo, A. (2005). *Violence against children affected by HIV / AIDS: A case study of Uganda. A contribution to the United Nations Study on Violence Against Children.* <https://www.semanticscholar.org/paper/Violence-against-children-affected-by-HIV-AIDS%3A-a-A-McGaw-Wameyo/759f4ef90f535d0b20404dccc5b062f116c26cb6>

McMichael, A. J. (2002). Population, environment, disease, and survival: Past patterns, uncertain futures. *The Lancet*, 359(9312), 1145–1148. [https://doi.org/10.1016/S0140-6736\(02\)08164-3](https://doi.org/10.1016/S0140-6736(02)08164-3)

Mokganyetji, T., Anderson, A., & Stern, E. (2015). *The 'One Man Can' Model: Community Mobilisation as an Approach to Promote Gender Equality and Reduce HIV Vulnerability in South Africa.*

Mtenga, S. M., Pfeiffer, C., Merten, S., Mamdani, M., Exavery, A., Haafkens, J., Tanner, M., & Geubbels, E. (2015). Prevalence and social drivers of HIV among married and cohabitating heterosexual adults in south-eastern Tanzania: Analysis of adult health community cohort data. *GLOBAL HEALTH ACTION*, 8, 1–10. <https://doi.org/10.3402/gha.v8.28941>

Ndinga-Muvumba, A., & Pharaoh, R. (2006). *HIV/AIDS and Gender (HIV/AIDS AND HUMAN SECURITY IN SOUTH AFRICA, pp. 21–23).* Centre for Conflict Resolution. <https://www.jstor.org/stable/resrep05148.8>

Netter, T. (1990, dicembre). World AIDS Day 1990. *World Health*, 27–29.

Nketiah-Amponsah, E., Abubakari, M., & Twumasi Baffour, P. (2019). Effect of HIV/AIDS on Economic Growth in Sub-Saharan Africa: Recent Evidence. *International Advances in Economic Research*, 25. <https://doi.org/10.1007/s11294-019-09754-3>

- Ogbodo, J. C., Ogbuabor, J. E., Omenazu, C., Eyimoga, A., & David, A. O. (2024). Effect of HIV/AIDS on labour productivity and the moderating role of literacy rate: A panel study of Africa and its sub-regions. *The International Journal of Health Planning and Management*, n/a(n/a). <https://doi.org/10.1002/hpm.3796>
- Ogolla, M. (2018). *SOCIO-ECONOMIC EFFECTS OF HIV/AIDS ON HOUSEHOLD FOOD SECURITY IN RANGWE SUB COUNTY, HOMA-BAY COUNTY, KENYA*. <https://www.semanticscholar.org/paper/SOCIO-ECONOMIC-EFFECTS-OF-HIV-AIDS-ON-HOUSEHOLD-IN-Ogolla/24bcd6a8d076b58707b99de5f22be73a6c9d711e>
- Ogundipe, A. A., & Olarewaju, F. O. (2020). Manufacturing Output and Labour Productivity: Evidence from ECOWAS. *Academic Journal of Interdisciplinary Studies*, 9(5), 102. <https://doi.org/10.36941/ajis-2020-0089>
- Organization, W. H. (2010). *The Abuja declaration: Ten years on* (WHO/HSS/HSF/2010.01). Articolo WHO/HSS/HSF/2010.01. <https://iris.who.int/handle/10665/341162>
- Owusu, A. Y. (2020). A gendered analysis of living with HIV/AIDS in the Eastern Region of Ghana. *BMC PUBLIC HEALTH*, 20(1), 751. <https://doi.org/10.1186/s12889-020-08702-9>
- P. Zinyemba, T., Pavlova, M., & Groot, W. (2020). Effects of Hiv/Aids on Children's Educational Attainment: A Systematic Literature Review. *Journal of Economic Surveys*, 34(1), 35–84. <https://doi.org/10.1111/joes.12345>
- Pathai, S., Gilbert, C., Weiss, H. A., Cook, C., Wood, R., Bekker, L.-G., & Lawn, S. D. (2013). Frailty in HIV-Infected Adults in South Africa. *JAIDS-JOURNAL OF ACQUIRED IMMUNE DEFICIENCY SYNDROMES*, 62(1), 43–51. <https://doi.org/10.1097/QAI.0b013e318273b631>
- Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A., Afifi, R., Allen, N. B., Arora, M., Azzopardi, P., Baldwin, W., Bonell, C., Kakuma, R., Kennedy, E., Mahon, J., McGovern, T., Mokdad, A. H., Patel, V., Petroni, S., Reavley, N., Taiwo, K., ... Viner, R. M. (2016). Our

future: A Lancet commission on adolescent health and wellbeing. *The Lancet*, 387(10036), 2423–2478. [https://doi.org/10.1016/S0140-6736\(16\)00579-1](https://doi.org/10.1016/S0140-6736(16)00579-1)

Peltzer, K., Babayigit, S., Rodriguez, V. J., Jean, J., Sifunda, S., & Jones, D. L. (2018). Effect of a multicomponent behavioural PMTCT cluster randomised controlled trial on HIV stigma reduction among perinatal HIV positive women in Mpumalanga province, South Africa. *SAHARA J-JOURNAL OF SOCIAL ASPECTS OF HIV-AIDS*, 15(1), 80–88.

<https://doi.org/10.1080/17290376.2018.1510787>

Pettifor, A., Lippman, S. A., Gottert, A., Suchindran, C. M., Selin, A., Peacock, D., Maman, S., Rebombo, D., Twine, R., Gomez-Olive, F. X., Tollman, S., Kahn, K., & MacPhail, C. (2018). Community mobilization to modify harmful gender norms and reduce HIV risk: Results from a community cluster randomized trial in South Africa. *JOURNAL OF THE INTERNATIONAL AIDS SOCIETY*, 21(7), e25134. <https://doi.org/10.1002/jia2.25134>

Reeves, J. D., & Doms, R. W. (2002). Human immunodeficiency virus type 2. *Journal of General Virology*, 83(6), 1253–1265. <https://doi.org/10.1099/0022-1317-83-6-1253>

Rodger, A. J., Cambiano, V., Bruun, T., Vernazza, P., Collins, S., Degen, O., Corbelli, G. M., Estrada, V., Geretti, A. M., Beloukas, A., Raben, D., Coll, P., Antinori, A., Nwokolo, N., Rieger, A., Prins, J. M., Blaxhult, A., Weber, R., Van Eeden, A., ... Janeiro, N. (2019). Risk of HIV transmission through condomless sex in serodifferent gay couples with the HIV-positive partner taking suppressive antiretroviral therapy (PARTNER): Final results of a multicentre, prospective, observational study. *The Lancet*, 393(10189), 2428–2438. [https://doi.org/10.1016/S0140-6736\(19\)30418-0](https://doi.org/10.1016/S0140-6736(19)30418-0)

Roelfs, D. J., Shor, E., Davidson, K. W., & Schwartz, J. E. (2011). Losing life and livelihood: A systematic review and meta-analysis of unemployment and all-cause mortality. *Social Science & Medicine*, 72(6), 840–854. <https://doi.org/10.1016/j.socscimed.2011.01.005>

Roser, M., & Ritchie, H. (2024). HIV / AIDS. *Our World in Data*. <https://ourworldindata.org/hiv-aids>

- Sano, Y., Antabe, R., Atuoye, K. N., Hussey, L. K., Bayne, J., Galaa, S. Z., Mkandawire, P., & Luginaah, I. (2016). Persistent misconceptions about HIV transmission among males and females in Malawi. *BMC INTERNATIONAL HEALTH AND HUMAN RIGHTS*, 16. <https://doi.org/10.1186/s12914-016-0089-8>
- Sheehan, P., Sweeny, K., Rasmussen, B., Wils, A., Friedman, H. S., Mahon, J., Patton, G. C., Sawyer, S. M., Howard, E., Symons, J., Stenberg, K., Chalasani, S., Maharaj, N., Reavley, N., Shi, H., Fridman, M., Welsh, A., Nsofor, E., & Laski, L. (2017). Building the foundations for sustainable development: A case for global investment in the capabilities of adolescents. *The Lancet*, 390(10104), 1792–1806. [https://doi.org/10.1016/S0140-6736\(17\)30872-3](https://doi.org/10.1016/S0140-6736(17)30872-3)
- Singh, G. K., Siahpush, M., & Kogan, M. D. (2010). Neighborhood Socioeconomic Conditions, Built Environments, And Childhood Obesity. *Health Affairs*, 29(3), 503–512. <https://doi.org/10.1377/hlthaff.2009.0730>
- Stephenson, R., Vwalika, B., Greenberg, L., Ahmed, Y., Vwalika, C., Chomba, E., Kilembe, W., Tichacek, A., & Allen, S. (2011). A Randomized Controlled Trial to Promote Long-Term Contraceptive Use Among HIV-Serodiscordant and Concordant Positive Couples in Zambia. *Journal of Women's Health*, 20(4), 567–574. <https://doi.org/10.1089/jwh.2010.2113>
- Stover, J., & Bollinger, L. (1999). *The Economic Impact of AIDS* (The POLICY Project, p. 14). The Futures Group International; Academia. [file:///C:/Users/flavi/Downloads/The_economic_impact_of_AIDS%20\(1\).pdf](file:///C:/Users/flavi/Downloads/The_economic_impact_of_AIDS%20(1).pdf)
- Sully, E. A., Biddlecom, A., Darroch, J. E., Riley, T., Ashford, L. S., Lince-Deroche, N., Firestein, L., & Murro, R. (2020). *Adding It Up: Investing in Sexual and Reproductive Health 2019*. <https://doi.org/10.1363/2020.31593>
- Szreter, S. (1988). *The importance of social intervention in Britain's mortality decline c. 1850-1914* (Vol. 1, pp. 1–38).

- Szreter, S. (1997). Economic Growth, Disruption, Deprivation, Disease, and Death: On the Importance of the Politics of Public Health for Development. *Population and Development Review*, 23(4), 693–728. <https://doi.org/10.2307/2137377>
- Teeraananchai, S., Kerr, S., Amin, J., Ruxrungtham, K., & Law, M. (2017). Life expectancy of HIV-positive people after starting combination antiretroviral therapy: A meta-analysis. *HIV Medicine*, 18(4), 256–266. <https://doi.org/10.1111/hiv.12421>
- Thomson, H., Thomas, S., Sellstrom, E., & Petticrew, M. (2013). Housing improvements for health and associated socio-economic outcomes. *Cochrane Database of Systematic Reviews*, 2. <https://doi.org/10.1002/14651858.CD008657.pub2>
- Tsai, A. C., Hung, K. J., & Weiser, S. D. (2012). Is food insecurity associated with HIV risk? Cross-sectional evidence from sexually active women in Brazil. *PLoS Medicine*, 9(4), e1001203. <https://doi.org/10.1371/journal.pmed.1001203>
- Tsai, A. C., & Subramanian, S. V. (2012). Proximate context of gender-unequal norms and women's HIV risk in sub-Saharan Africa. *AIDS*, 26(3), 381–386. <https://doi.org/10.1097/QAD.0b013e32834e1ccb>
- Tseng, A., Seet, J., & Phillips, E. J. (2015). The evolution of three decades of antiretroviral therapy: Challenges, triumphs and the promise of the future. *British Journal of Clinical Pharmacology*, 79(2), 182–194. <https://doi.org/10.1111/bcp.12403>
- UNAIDS. (s.d.). *Gender based violence*. Recuperato 3 maggio 2024, da <https://www.unaids.org/en/keywords/gender-based-violence>
- UNAIDS. (2002). *Report on the global HIV/AIDS epidemic* (p. 229). Joint United Nations Programme on HIV/AIDS.
- UNAIDS. (2010a). *Global HIV/AIDS Response—Epidemic update and health sector progress towards Universal Access* [Progress Report]. World Health Organization. https://www.unaids.org/sites/default/files/media_asset/20111130_UA_Report_en_3.pdf

- UNAIDS. (2010b). *Global Report: UNAIDS report on the global AIDS pandemic 2010* (JC1958E).
Joint United Nations Programme on HIV/AIDS.
- UNAIDS. (2010c). Launch of UNAIDS new report on AIDS - Global commitment, local action.
UNAIDS.ORG. <https://hlm2021aids.unaids.org/event/launch-of-unaid-new-report-on-aids/>
- UNAIDS. (2019). *Women and HIV — A spotlight on adolescent girls and young women*.
<https://www.unaids.org/en/resources/documents/2019/women-and-hiv>
- UNAIDS. (2023). *The path that ends AIDS: UNAIDS Global AIDS Update 2023*. Joint United Nations Programme on HIV/AIDS. https://thepath.unaids.org/wp-content/themes/unaid2023/assets/files/2023_report.pdf
- Wagstaff, A., Flores, G., Smitz, M.-F., Hsu, J., Chepynoga, K., & Eozenou, P. (2018). Progress on impoverishing health spending in 122 countries: A retrospective observational study. *The Lancet Global Health*, 6(2), e180–e192. [https://doi.org/10.1016/S2214-109X\(17\)30486-2](https://doi.org/10.1016/S2214-109X(17)30486-2)
- Weiser, S. D., Bukusi, E. A., Steinfeld, R. L., Frongillo, E. A., Weke, E., Dworkin, S. L., Pusateri, K., Shiboski, S., Scow, K., Butler, L. M., & Cohen, C. R. (2015). *Shamba Maisha*: Randomized controlled trial of an agricultural and finance intervention to improve HIV health outcomes. *AIDS*, 29(14), 1889–1894.
<https://doi.org/10.1097/QAD.0000000000000781>
- Weiser, S. D., Leiter, K., Bangsberg, D. R., Butler, L. M., Percy-de Korte, F., Hlanze, Z., Phaladze, N., Iacopino, V., & Heisler, M. (2007). Food insufficiency is associated with high-risk sexual behavior among women in Botswana and Swaziland. *PLoS Medicine*, 4(10), 1589–1597; discussion 1598. <https://doi.org/10.1371/journal.pmed.0040260>
- Wingood, G. M., Reddy, P., Lang, D. L., Saleh-Onoya, D., Braxton, N., Sifunda, S., & DiClemente, R. J. (2013). Efficacy of SISTA South Africa on Sexual Behavior and Relationship Control Among isiXhosa Women in South Africa: Results of a Randomized-Controlled Trial. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 63, S59.
<https://doi.org/10.1097/QAI.0b013e31829202c4>

- World Health Organization. (2013). *Global and regional estimates of violence against women: Prevalence and health effects of intimate partner violence and non-partner sexual violence*. World Health Organization. <https://iris.who.int/handle/10665/85239>
- Yamano, T., & Jayne, T. S. (2004). Measuring the Impacts of Working-Age Adult Mortality on Small-Scale Farm Households in Kenya. *World Development*, 32(1), 91–119. <https://doi.org/10.1016/j.worlddev.2003.07.004>
- Ybarra, M. L., Korchmaros, J. D., Prescott, T. L., & Birungi, R. (2015). A Randomized Controlled Trial to Increase HIV Preventive Information, Motivation, and Behavioral Skills in Ugandan Adolescents. *ANNALS OF BEHAVIORAL MEDICINE*, 49(3), 473–485. <https://doi.org/10.1007/s12160-014-9673-0>
- Yotebieng, M., Moracco, K. E., Thirumurthy, H., Edmonds, A., Tabala, M., Kawende, B., Wenzel, L. K., Okitolonda, E. W., & Behets, F. (2017). Conditional Cash Transfers Improve Retention in PMTCT Services by Mitigating the Negative Effect of Not Having Money to Come to the Clinic. *Journal of Acquired Immune Deficiency Syndromes (1999)*, 74(2), 150–157. <https://doi.org/10.1097/QAI.0000000000001219>

Appendix: papers that resulted from the systematic review

Paper	Country	Type of intervention	Key expected outcomes	Key beneficiaries
Kim et al. (2007)	South Africa	Intervention With Microfinance for AIDS and Gender Equity (<i>IMAGE</i>) microfinance program	Reduced intimate partner violence rates, increased testing uptake, improved female empowerment	14-35 year old women from eight rural villages
Jewkes et al. (2008)	South Africa	<i>Stepping Stones</i> behavioral training sessions	Improved sexual health, reduced risky behavior	1360 men, 1460 women aged 15-26 years
Abramsky et al. (2014)	Uganda	<i>SASA!</i> community multilevel intervention	Break gender norms, reduce acceptability of gender-based violence	1583 18-49 year old people from four communities
Mokganyetji et al. (2015)	South Africa	<i>One Man Can</i> one-to-one behavioral training sessions, group discussions on gender norms	Reduced intimate partner violence rate in men	93 adult men
Stephenson et al. (2011)	Zambia	Zambia Emory HIV Research Project (ZEHRP) counseling and condom skills training, video sessions on contraceptives	Increased contraceptive uptake, decreased fertility among serodiscordant couples	1502 discordant and concordant positive couples
Ybarra et al. (2015)	Uganda	<i>CyberSenga</i> school-based behavioral training sessions, video sessions on HIV	Reduced risky behavior, improved motivation to use condoms	366 sexually experienced and inexperienced students
Peltzer et al. (2018)	South Africa	Protect Your Family video and training sessions	Reduce HIV-positive pregnant women's self-inflicted stigma	699 pregnant HIV-positive women
Jones et al. (2014)	Zambia	<i>Partner Project</i> behavioral training sessions, alcohol use counselling, intimate partner violence counselling	Improve risky behavior in serodiscordant couples, improving communication	197 seroconcordant and discordant couples
Wingood et al. (2013)	South Africa	<i>SISTA South Africa</i> multicomponent sessions	Female empowerment, reduced risky behaviors	342 18-35 years old women from isiXhosa community
Konate et al. (2011)	Burkina Faso	Yerelon group sessions, individual contraceptive training, provision of ART	Increased condom use	658 high risk young women

Pettifor et al. (2018)	South Africa	Sonke Gender Justice community mobilization intervention	Changed disparaging gender norms, increased awareness of gender inequities	252 households in 11 intervention communities
Hallfors et al. (2015)	Zimbabwe	Eunice Kennedy Shriver National Institute of Child Health and Human Development school support structural program	Increased school attendance	328 orphaned adolescent girls
Mathews et al. (2016)	South Africa	<i>PREPARE</i> school-based health training	Delayed sexual debut, increased condom use	6244 adolescent boys and girls
Yotebieng et al. (2017)	Congo	President's Emergency Plan for AIDS Relief and the National Institute of Health and Child Development	Retention in care of seropositive mothers	433 newly diagnosed pregnant women
Weiser et al. (2015)	Kenya	<i>Shamba Maisha</i> multicomponent agricultural intervention	Improved quality of life, increased food intake	72 farmer households
Bachanas et al. (2015)	Namibia, Kenya, Tanzania	Multigovernmental clinic-based intervention	Decreased unprotected sex, increased information about transmission	3034 patients in eighteen clinics