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Article

HIV and sustainable development: Integrating religion, culture, and science infrastructure for a holistic treatment acceptance and adherence in Kenya

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Abstract: The achievement of sustainable development in Kenya has been hindered by the prevalence of HIV. The effects of HIV on sustainable development have been given less academic attention. HIV prevalence prevents people from achieving good health and well-being, which then makes them unable to conduct activities that lead to sustainable economic growth. The paper found that the prevalence of HIV causes economic hardship, destroys human capital development and human resources by reducing life expectancy and increasing mortality rates. It was equally found that the prevalence of HIV undermines social stability and mobility, reduces economic investments, influences food insecurity and makes people vulnerable. The paper found that the prevalence of HIV reduces labor supply and productivity, increases the cost of health services, promote inequality and poverty. The paper found that the prevalence of HIV was caused by the failure to integrate religion, culture and science infrastructure to achieve a holistic treatment acceptance and adherence that would overcome all misconceptions people have towards the disease. The paper found that while science provides effective HIV treatments, religious and cultural perspectives often shape community attitudes toward the disease. It was found that engaging religious and cultural as well as health workers or health advocates can help reduce stigma and promote ART adherence by aligning treatment messages with faith-based principles. The paper found that the integration that incorporates religion, culture, and science into HIV interventions would promote a more inclusive healthcare system that respects diverse beliefs while ensuring evidence-based treatment is accessible and widely accepted. The study was conducted through a qualitative methodology. Data was collected from secondary sources that included published articles, books and occasional papers as well as reports. Collected data was interpreted and analyzed through document analysis techniques.

Keywords: HIV; sustainable development; economic hardship; cultural integration; ART adherence

1. Introduction

The rise in cases of the human immunodeficiency virus (HIV) in Kenya has made the disease pose critical threats to health security, thus preventing every effort towards achieving sustainable development. The cases of HIV in the country have had a complex relationship with poverty, as poverty too has served as one of the key triggers that make people more vulnerable to HIV infection. Poverty disempowers people and makes them vulnerable to unprotected and commercial sex, and other related events to earn a living. In their efforts to meet their most basic needs such as food, education, employment, and shelter, vulnerable people fear to negotiate condom use or to avoid intimate partner violence, thus becoming at risk of exposure to HIV. Poverty in the household leads to malnutrition which makes HIV treatment and adherence less

effective. Anema et al. (2009) argued that malnourished individuals are more vulnerable to HIV infection. Malnourished people tend to have worse conditions that influence the cases of HIV as they engage in risky behaviors (Anema et al., 2009). It has been noted that antiretroviral treatment itself becomes less effective in people with inadequate nutrition (Anema et al., 2009; Bloem et al., 2010). The relationship between sustainable development and HIV is, in fact, vicious; households affected by HIV are subsequently less likely, because of loss of labor productivity and increased expenditure on treatment to have adequate supplies of food (Kaschula, 2008).

Weiser et al. (2007) noted that food-insecure women have been documented to be more likely to engage in unprotected sex and to report low power in relationships. HIV remains a significant health concern and barrier to achieving sustainable development in Kenya, with social, cultural, and religious beliefs deeply influencing the treatment landscape. HIV-affected families have also been observed to gradually sell off household assets to gain income as a buffer against lost labor and lost productive value. Families that own livestock sell the animals to pay for food, treatment, or household expenses, which leads not only to a reduction in income but also to a decrease in available manure and animal labor, which in turn further reduces food production. Erosion of household assets leaves families more vulnerable to further economic or health shocks (Barany et al., 2004).

Scientific advancements in HIV treatment, particularly the introduction of antiretroviral treatment (ART) have enabled millions of patients to live healthy lives despite their HIV status. They have enabled HIV-infected people to overcome stigmatization, regain energy to continue their daily labor and activities and continue their employment thus overcoming poverty and malnutrition. However, in Kenya, where religion and culture are prominent social forces, acceptance of medical treatments can be influenced by prevailing beliefs. The paper argued that religious and cultural perspectives on HIV have created unnecessary barriers that have prevented easy access to healthcare or adherence to treatment in Kenya. This paper argued that scientific achievements in HIV treatment, such as ART, have shown effectiveness in managing the disease; however, in Kenya these interventions often face obstacles emanating from cultural norms and religious beliefs.

This paper aims to assess the effects of HIV on preventing the achievement of sustainable development, as well as explore an integrated approach that includes culture, religion, and science that promotes holistic treatment acceptance, adherence, and prevention. The research question guiding this assessment and exploration that the paper seeks to answer is, what possible factors make HIV a barrier to sustainable development, and how can an integrated approach that combines culture, religion, and science constitute a holistic approach to treatment acceptance and adherence? To achieve the aim and answer the question, this paper is thus structured into five main sections. While the first section was an introduction that highlighted the research problem, aim, and questions, the second section consisted of the research methodology that was used to collect data. The third section consisted of a literature review, while the fourth section consisted of discussions of the findings. The fifth section consisted of a conclusion that proffered practical recommendations to policymakers and future studies.

2. Effects of HIV on sustainable development

The prevalence of HIV caused by resistance to treatment and adherence has posed threats to economic security. It has immensely hindered the achievement of sustainable economic growth which would enable the achievement of good health and well-being which is a third goal of the Sustainable Development Goals (SDGs). For instance, it has increased healthcare costs, reduced workforce productivity, and decreased both foreign and domestic investments as well as savings. The prevalence has ultimately hindered economic growth and instead has exacerbated poverty making it difficult to achieve sustainable development in Kenya. It has been noted that through its broad economic impact, HIV has become an issue for macroeconomic analysis, and policies to prevent the spread of the virus have direct implications for key economic indicators such as economic growth and income per capita, and for economic development more generally. Campbell (1999) argued that sustainable development is 'the long-term ability of a system to reproduce.' Beatley and Manning (1998) and Abubakar and Aina (2017) noted that sustainable development includes freedom and quality of life, as well as the establishment of inclusive development policy and agenda. Sustainable development has been conceptualized as a development paradigm that calls for improving living standards without jeopardizing the earth's ecosystems (Browning and Rigolon, 2019).

Niyitunga and Musya (2024) noted that sustainable development is the ability of citizens to have sustainable livelihoods and income to meet their present needs and the skills to use them in ways that compromise future generations' efforts to meet their own needs. Niyitunga and Musya (2024) further noted that sustainable development is centered on the values of equity, which implies fairness and equitability in the global system for the coming generations. Niyitunga and Musya (2024) found that sustainable development is an economic development that sustains current and future generations and enables them to achieve material comfort that is fairly distributed and within the limits of natural systems.

To understand the linkages between HIV and people's health and well-being to affect sustainable development (Bota-Avram et al., 2018), indicated that sustainable development can only be achieved and maintained as long as the total welfare of the people does not decline along the path. The global sustainable development agenda for 2030 has presented that health is at the center of achieving sustainable development (WHO, 2016). As specified in the third goal of SDGs, ensuring healthy lives and promoting well-being for all at all ages is a precondition for achieving sustainable development. In order to achieve sustainable development, there is a need to examine various effects and threats that HIV poses on health thus preventing the path towards sustainable development. HIV, being an infectious disease poses immense threats that prevent the achievement of good health. WHO (2016) noted that good health is inherently significant as a human right but is also important to achieving pillars of sustainable development.

These pillars include economic development, environmental sustainability, social inclusion, and good governance (Odugbesan and Rjoub, 2020). This is to say that sustainable development is highly linked with good health, and as such anything like diseases that affect health decreases the possibility of achieving sustainable

development. Odugbesan and Rjoub (2020) supported this argument that in the absence of health and a healthy population that would promote productions that lead to sustainable economic growth, sustainable development becomes elusive. The Report of Sustainable Development Solutions Network (SDSN) (2014) indicated that combating the spread of HIV is critical to human progress and the achievement of sustainable development because this disease disproportionately affects the development potential of dozens of countries. HIV has a complex linkage with poverty and in turn to the larger sustainable development (Ntim, 2016). Poverty can make people more vulnerable to HIV infection.

The epidemic hampers economic growth by reducing the workforce through illness and HIV-related mortality. This loss of human capital affects productivity and increases healthcare expenditures, diverting funds from other developmental projects. The economic burden is further compounded by the need to address non-communicable diseases, which are on the rise in sub-Saharan Africa (Odunyemi et al., 2024). However, as recognition grew that HIV cases are more prominent amongst people of working age, economic researchers began to analyze the detrimental impact of HIV on economic growth. In 2016, for instance, about 25.73 million people were estimated to be living with HIV in Africa, among whom 741,000 died due to HIV-related illness (Odugbesan and Rjoub, 2020). It has been indicated that a higher prevalence of HIV decreases life expectancy, higher mortality rates, lowers birth rates, lowers human capital, and lowers job productivity (UNAIDS, 2018). It has been similarly noted that the HIV epidemic affects real GDP and economic growth (Fortson, 2011). In Kenya the prevalence of HIV has affected economic growth is prolific and has undermined every effort towards a sustainable development path. The negative impact of HIV on economic growth is the fact that it affects GDP growth (Asiedu et al., 2015; Maijama'a et al., 2015).

HIV has tremendous income thus affecting the achievement of sustainable development. HIV affects the income of the affected households not only through the sickness and death of household members but also as the time previously devoted to income-generating activities by other household members must be reallocated to the care of the sick member (Niyitunga and Musya, 2024). The effects of HIV on the income of an HIV-infected worker depend on the source of that income. If the worker is self-employed or may be paid according to their productivity, income declines immediately as the worker's health starts to deteriorate (Bota-Avram et al., 2018). If instead the worker receives a fixed salary the income loss is not directly tied to the decline in productivity, and, as absenteeism increases, the loss is mitigated through sick leave and, possibly, a disability pension (Bota-Avram et al., 2018). In assessing the impact of HIV on income, it is useful to distinguish between time lost from work (absenteeism) and declining productivity on the job. There is substantial evidence that both time at work and productivity decline well before a worker dies or retires because of ill health. In one South African sugar mill, about 10%, on average, of a sick employee's working time was lost in the two years before the worker retired (Morris et al., 2000). Fox et al. (2004) argued that tea pickers on an estate in Kenya who retired or died from HIV-related causes earned 16% less in their penultimate year at work, and 17.7% less in the final year.

The household's living standard also deteriorates as other household members

have to reallocate time from other productive activities (not necessarily income-generating) in order to care for a sick relative. In this regard, Obansa, Yelwa and Diyoke (2014) using data from a survey of 771 HIV-affected households in different parts of South Africa, find that over two-thirds of caregivers are women. Twenty-two percent of caregivers had to take time off from work and other income-generating activities, 20% had to forgo school or study time, and 60% took time from other housework and gardening activities. Mather et al. (2004) and Bota-Avram et al. (2018) argued that the effects of HIV on adult mortality in rural households pose threats to the achievement of sustainable economic growth thus impacting sustainable development. It was indicated that HIV infection correlates with relative income and education (Bota-Avram et al., 2018).

HIV results in increased demand for health-related goods and services. Because household income tends to shrink at the same time this demand is rising, the household is forced to cut other expenditures or sell some of its assets (Bota-Avram et al., 2018). The World Bank (1999) report found that households affected by HIV lowered their overall expenditures, but that the share of medical expenditure in the total rose. Obansa, et al. (2014) find that households affected by HIV spend about one-third of their income on health care. One important part of HIV-related expenditure is the cost of funerals. Obansa, et al. (2014) suggest that funeral expenses are, on average, equivalent to four months' salary.

The prevalence of HIV also affects the well-being of the people thus impeding the achievement of sustainable development. The loss of one or both parents to HIV affects the well-being of their orphaned children directly, but it also has important economic repercussions. As households affected by HIV lose income and have to reallocate resources toward care, children are at higher risk of malnutrition (Bota-Avram et al., 2018). Moreover, the loss of a loving parent, the increased financial hardship, and the frequent need to take time off from school to care for a sick family member cause their education and thus their economic prospects to suffer (Bota-Avram et al., 2018). During the parent's illness and after his or her death, members of the extended family frequently care for the children of the family (Obansa et al., 2014).

Case et al. (2002) noted that orphans tend to live in poorer households than non-orphans and that school enrollment rates for orphans tend to be lower than for non-orphans, even after controlling for household income. The United Nations Children's Fund (UNICEF, 2003), indicated that dependency ratios in households caring for orphans are higher than in non-orphan households and that enrollment rates for orphans are lower than for non-orphans. HIV affects most of the common indicators of living standards, such as income, health standards, and access to education. One can see that fighting and addressing the prevalence of HIV enables the direct achievement of key SDGs such as eradicating extreme (income) poverty and hunger, good health and well-being, universal primary education, gender equality and empowering women, reducing child mortality, and as well as improving maternal health. For example, poverty affects people's vulnerability to HIV, by increasing the risk of contracting the virus oneself. This can either be done through a lack of education or sexual choice. Moreover, poverty reduces one's ability to deal with the economic and social consequences of HIV. For example, poor households are in a worse position than others to cope with the HIV illness and death of a household member. HIV affects

living standards at the individual and household levels. HIV poses effects on microeconomic, economic growth, and development mostly at the household level, thus affecting the achievement of sustainable development.

Alemu et al. (2005) looked specifically at the impact of HIV on total factor productivity to infer the effects on economic performance. Alemu et al. (2005) further noted that the prevalence of HIV affects the economic performance and growth of any country in world politics. For instance, in the Southern African region where countries are reported to have high prevalence rates, HIV has posed a large negative impact on factor productivity growth (Alemu et al., 2005). Therefore, high HIV prevalence rates can have large, negative impacts on economic performance through total factor productivity (Alemu et al., 2005). Ouattara (2004) argued that the lack of using a health policy to stabilize the HIV infection rate leads to a decrease in the growth rate of the economy at any prevalence level. McDonald and Roberts (2006) argued that HIV has a negative effect on the economy and brings changes in income per capita, making people vulnerable as it entangles them in chronic poverty.

Undoubtedly, the prevalence of HIV in Kenya continues to affect various aspects of health and well-being, influences poverty, and hunger, and deepens gender inequality. It has been reported that this prevalence is mostly in the working class or workforce of adults aged 15–49 years, and among them, women carry higher rates of infections (UNAIDS, 2021). Women are the center of sustainable development because their full participation and empowerment are crucial for achieving sustainable development across economic, social, and environmental aspects, making gender equality a critical component for a sustainable future. Their participation is based on well-being and welfare free from HIV disease. All over the world, the prevalence of HIV in women keeps them poor and deprives them of basic rights and opportunities for well-being, yet women make vital contributions every day by bringing an income to their households. However, a woman infected with HIV, for instance, may not be able to earn a living thus posing effects on the household.

In Kenya, the prevalence of HIV-related morbidity and mortality has increased healthcare costs and strain on the healthcare system, impeding the achievement of sustainable development. As the achievement of the SDGs is linked with the achievement of good health and well-being, the HIV disease has made the government of Kenya fail to enable people to achieve healthy lives and promote well-being for all at all ages, thus achieving sustainable development. Moreover, in Kenya, the prevalence of HIV disease has posed significant challenges to public health and sustainable development. A holistic approach that integrates religious, cultural, and scientific perspectives is essential to enhance treatment acceptance and adherence among individuals living with HIV. For instance, in 2024, the Kenya National Syndemic Disease Control Council estimates that 1,378,457 people are living with HIV (PLHIV) in Kenya, with 487,710 being males and 890,747 being females. The national HIV prevalence rate is 3.31%, with a higher prevalence among females at 4.46% compared to males at 2.16%. Additionally, the study estimates 16,752 new HIV infections, with 5968 among males and 10,784 among females (NSDCC, 2024).

3. Factors influencing the resistance of HIV treatment in Kenya

In Kenya, there are various factors that influence the resistance of HIV treatment. There remains a considerable percentage of people living with HIV that have developed drug-resistance mutations.

3.1. Scientific advances in HIV treatment

Scientific advancements have significantly altered the trajectory of HIV, transforming it from a fatal illness to a chronic, manageable condition. The introduction and widespread use of antiretroviral therapy (ART) represents one of the most profound developments in HIV treatment, drastically reducing morbidity and mortality rates among those infected (Pandhi and Ailawadi, 2014). ART suppresses the viral load, prevents HIV from replicating, and thereby reduces the risk of transmission. This allows people living with HIV to live healthier lives and minimizes the virus's spread within communities (Winiger and Peng-Keller, 2021). ART regimens have evolved over the years, shifting from complex, high-dose treatments to more user-friendly single-pill therapies, which simplify adherence and minimize side effects (Vigliotti et al., 2020). For instance, the transition to once-daily fixed-dose combinations has reduced the burden of medication for patients, improving adherence rates and overall health outcomes. Additionally, long-acting injectable ART formulations are under development, which could provide effective viral suppression with less frequent dosing—further addressing adherence challenges in communities with limited access to healthcare facilities (Havlir and Gandhi, 2015).

Scientific efforts also emphasize the importance of ART adherence to prevent drug resistance, which can occur when individuals do not consistently follow their treatment regimen. Drug-resistant strains of HIV pose a serious threat to public health, as they limit treatment options and can lead to increased transmission of resistant strains (Azia et al., 2023). In Kenya and other countries with high HIV prevalence, maintaining ART adherence is critical to achieving the public health goal of ending the HIV epidemic by 2030 (Luong Nguyen et al., 2020). Healthcare providers and public health organizations are working to ensure widespread access to ART and supporting adherence through educational programs, counseling, and community engagement (Millacci, 2024).

Despite the remarkable success of ART in clinical settings, challenges persist in achieving optimal adherence among patients. In Kenya, sociocultural and religious beliefs continue to influence attitudes toward ART. For instance, some community members may view HIV as a moral or spiritual issue, leading them to seek healing from religious or traditional sources rather than medical interventions (Bouabida et al., 2023). Additionally, fear of stigma often discourages individuals from accessing or adhering to ART, as revealing their HIV status may lead to social exclusion or discrimination (Kioko et al., 2021). These challenges emphasize the importance of culturally relevant interventions that address both the medical and social aspects of HIV.

Recent initiatives in Kenya aim to incorporate community leaders, traditional healers, and faith-based organizations into HIV treatment campaigns. By working collaboratively, healthcare providers can promote ART as a life-saving intervention

while respecting local beliefs and values. For example, some programs partner with churches and mosques to deliver ART education and emphasize the role of medicine in preserving life, which aligns with values upheld by many faith communities (Lee, 2022). Research suggests that these integrative approaches can help reduce stigma and encourage greater acceptance of ART within communities, enhancing overall treatment outcomes (Pandhi and Ailawadi, 2014).

3.2. Religious beliefs and HIV treatment

Religious beliefs hold significant influence over health behaviors and attitudes toward HIV, especially in countries like Kenya, where faith-based institutions play central roles in community life. Religious organizations such as churches and mosques often provide not only medical support but also emotional and spiritual comfort to people affected by HIV, helping reduce stigma and promote supportive care environments (Azia et al., 2023). Many religious leaders use their influence to advocate for compassionate responses and to encourage their communities to support those affected by the disease. However, tensions sometimes arise between religious teachings and scientifically recommended HIV prevention and treatment measures.

Some conservative religious doctrines discourage practices such as condom use, advocating for abstinence, and fidelity as the primary means of prevention (Vigliotti et al., 2020). While abstinence and fidelity are crucial in reducing transmission, discouraging condom use limits community access to other proven preventive measures, particularly for people who may not be in monogamous relationships or face other social challenges. This stance has led to friction between healthcare providers and religious organizations, as public health initiatives aim for broader, more inclusive prevention methods encompassing behavioral and medical strategies.

In certain communities, HIV has been framed as a moral failing or even as a form of punishment for perceived sins, leading to increased stigma for those living with the virus. For example, in some evangelical Christian groups, HIV has been described as a consequence of "immoral behavior," a perspective that can marginalize individuals diagnosed with HIV and lead to further social exclusion (Azia et al., 2023). Similarly, some traditional African religious beliefs interpret HIV as resulting from witchcraft or curses. This perspective can drive people away from medical treatment and toward traditional healers or spiritual interventions (Tenkorang et al., 2011). For example, the Pentecostal churches in certain parts of Africa, including Kenya, often view illness, including HIV, as a spiritual challenge rather than a strictly medical condition. Some leaders within these churches may encourage prayer and faith healing as alternatives to antiretroviral therapy (ART), which can lead to reduced treatment adherence and poor health outcomes (Mantell et al., 2011).

Zou et al. (2009) state how research has shown that religious framing of HIV as a moral or spiritual issue can discourage people from seeking ART, either due to shame, fear of community judgment, or a belief that the illness will be cured through faith alone. In addition, some traditional African beliefs frame HIV within the context of witchcraft, where illness is thought to result from curses or the actions of malevolent spirits. This belief system not only stigmatizes individuals living with HIV but also diverts people toward traditional healers rather than medical facilities (Tenkorang et

al., 2011).

As a researcher, I believe that the contribution of religious institutions to HIV treatment is indeed complex. While many religious leaders are advocates for compassionate and science-informed responses to the epidemic, others may inadvertently reinforce stigma by portraying the disease as a moral failing or spiritual issue. Collaborating with religious leaders who are open to supporting medically informed perspectives could help reduce stigma and encourage more community members to seek and adhere to HIV treatment. Educating religious leaders on the benefits of ART and prevention methods, such as condom use, could create a supportive environment that bridges the gap between faith and medicine. Furthermore, training leaders to incorporate destigmatizing language and emphasize the importance of medical treatment within the context of faith could foster a more inclusive approach to HIV care within religious communities.

The complex interplay between faith, traditional beliefs, and public health is evident in Kenya, and other parts of sub-Saharan Africa, where cultural and religious beliefs remain deeply embedded in society. Successful HIV interventions may depend on adopting a multifaceted approach that integrates respect for religious and cultural perspectives with evidence-based medical practices. Initiatives that involve religious leaders as advocates for ART adherence and destigmatization, such as the Kenyan Interfaith Network on HIV and AIDS (KINHA), have shown that faith leaders can play an instrumental role in changing community attitudes and promoting healthier behaviors (Winiger and Peng-Keller, 2021). By fostering collaboration between healthcare providers and religious institutions, public health practitioners can work toward destigmatizing HIV and promoting broader acceptance of ART and preventive measures. In this context, religious leaders who view HIV as a medical condition rather than a moral or spiritual issue could serve as critical allies in advancing effective treatment strategies and reducing community-level stigma.

3.3. Cultural beliefs and HIV

Kenya's rich cultural diversity plays a complex role in shaping community responses to HIV, particularly in terms of treatment adherence and prevention. Beliefs and practices tied to traditional medicine, spirituality, and health perceptions contribute to both the acceptance and rejection of HIV treatments, influencing public health outcomes. In some communities, HIV is stigmatized and seen as a taboo or supernatural issue, leading to alternative explanations like witchcraft rather than biomedical causes. This worldview can discourage individuals from seeking antiretroviral therapy (ART), as they might seek intervention from traditional healers who are believed to cure spiritual ailments (Thielman et al., 2014).

In regions where HIV is viewed through the lens of witchcraft or curses, such as parts of western Kenya, HIV symptoms may be attributed to supernatural forces rather than biological factors (Ndou-Mammbona, 2022). This belief system promotes reliance on traditional healers and spiritual rituals as primary treatment options, often delaying or discouraging the use of ART. For instance, certain Luo and Luhya communities might attribute persistent illness to ancestral curses or witchcraft, making ART less acceptable as it does not align with cultural interpretations of the disease

(Ojwang, 2018). While traditional healers play respected roles in many communities, their approaches to HIV often lack the efficacy of ART, leaving individuals vulnerable to disease progression and transmission.

Gender norms in Kenya further complicate health-seeking behaviors, particularly among men, as some cultural ideals of masculinity emphasize strength and resilience. Seeking medical help is sometimes viewed as a sign of vulnerability or weakness, especially for men, leading to reluctance to seek healthcare services, including HIV testing and treatment (Beia et al., 2021). Studies indicate that men in certain Kenyan communities are less likely to seek medical care for HIV, as they fear being judged for appearing "unmanly" or weak (Akinyi, 2021). This cultural reluctance not only undermines ART adherence but also perpetuates the spread of HIV within families and communities, as untreated individuals continue to transmit the virus.

The cultural association of illness with moral or social transgressions also affects perceptions of HIV. In some coastal communities, where Islamic beliefs and traditional Swahili customs are intertwined, there exists a tendency to associate health issues with societal behavior, leading to stigmatization (Swartz, 1997). Individuals with HIV may be viewed as having violated social norms, thereby deserving their illness. This stigmatization discourages individuals from seeking ART for fear of social rejection and shame. Consequently, health interventions must address these stigma-related barriers, providing culturally adapted education that reframes HIV as a medical condition rather than a moral or supernatural issue.

Addressing these cultural beliefs is essential to improving HIV treatment adherence in Kenya. Programs that incorporate cultural competency training for healthcare workers can foster respect for patients' cultural perspectives, which is vital in establishing trust and encouraging ART uptake. Healthcare interventions can also include culturally adapted education initiatives, such as working with traditional healers or community leaders to promote scientifically supported treatment. In communities where witchcraft or curses are believed to cause HIV, for example, partnering with influential local figures to explain ART's role could help reduce skepticism and encourage acceptance of medical treatment (Winiger and Peng-Keller, 2021). Additionally, involving male community leaders in awareness campaigns might normalize health-seeking behaviors among men, helping to dismantle norms that discourage accessing medical care.

This approach aligns with findings that suggest culturally responsive health education fosters greater ART adherence, as it bridges the gap between scientific knowledge and cultural beliefs. In sub-Saharan African contexts, programs that engage community leaders and address traditional views on illness have shown success in increasing healthcare utilization and improving HIV outcomes (Azia et al., 2023). Such initiatives promote understanding and acceptance, reinforcing ART's role as a legitimate and effective treatment.

4. How can these factors be addressed

To address HIV in Kenya, the primary focus has been on prevention strategies like promoting condom usage, comprehensive sexuality education, and voluntary medical male circumcision (VMMC). It has also been targeting community-based HIV

testing, particularly among vulnerable groups like young women and adolescent girls. There have also been key measures that were set up to ensure access to treatment and address social factors like gender-based violence. However, those initiatives to address the prevalence of HIV have not yet led to positive outcomes. Addressing the above-mentioned and explained multifaceted factors influencing the prevalence of HIV treatment in Kenya requires a comprehensive approach that integrates religion, culture, and science. The following strategies outline potential pathways to foster treatment acceptance and adherence within Kenya's diverse communities.

Engaging religious leaders as health advocates is one of the approaches that can address and mitigate the prevalence of HIV disease in Kenya (Niyitunga and Musya, 2024). Religious leaders hold significant sway within Kenyan communities and can be instrumental in reducing HIV stigma and promoting treatment. Training them on HIV facts, ART adherence, and preventive measures could bridge the gap between faith and medicine (Alyanak and Jensen, 2006). By linking ART and preventive practices to religious teachings on compassion and the sanctity of life, leaders can reinforce the importance of seeking treatment while providing spiritual support. For instance, messages emphasizing "loving thy neighbor" (Matthew 22:39) can help reduce stigma toward people living with HIV, while "healing all manner of sickness" (Matthew 10:1) aligns with encouraging individuals to pursue medical treatment. This combined approach can help community members feel more comfortable accessing healthcare services without compromising their faith.

Moreover, developing culturally sensitive health education can also serve as an approach to the prevalence of HIV in Kenya. Health education that respects and incorporates local cultural beliefs is essential for meaningful engagement with communities. Crafting HIV messages that align with traditional values such as safeguarding family health, preserving life, and fulfilling one's responsibilities, can enhance ART adherence. When framed as a means of protecting the family and fulfilling social obligations, ART may be viewed as aligning with rather than opposing community values (Mantell et al., 2011). For example, integrating HIV education into customary events, like family gatherings, can make the information more relevant and accessible. Messages like "Honor your father and mother" (Exodus 20:12) could be tied to the idea that ART helps individuals remain healthy to continue their familial and social roles.

More important is the act of having strong collaboration and cooperation with traditional healers. Given the influence of traditional healers in many Kenyan communities, involving them in HIV treatment initiatives can strengthen community trust and acceptance of ART. Traditional healers, respected for their role as custodians of health, can serve as cultural mediators by explaining how ART complements rather than contradicts traditional beliefs. In turn, these healers can frame ART as an essential tool that can work alongside traditional practices to preserve life and maintain health. Evidence from similar initiatives in other contexts, such as collaborations in India, demonstrates that including traditional practitioners can increase ART adherence and reduce stigma (Mhaskar et al., 2013). This collaborative approach respects traditional healing practices while ensuring patients receive scientifically supported treatments.

The other practical approach to the prevalence of HIV in Kenya is the promotion of gender-sensitive interventions. Gender-sensitive interventions that address gender

norms that dissuade men from seeking HIV treatment are crucial for broader ART uptake. Many men in Kenya perceive health-seeking behavior as a sign of weakness, which discourages them from seeking HIV testing and treatment. Gender-sensitive interventions could involve campaigns tailored to men, emphasizing messages that align with masculinity and self-reliance while promoting health. Including male leaders as advocates for HIV testing and ART can help to shift social perceptions and normalize treatment for men. The Bible's message on personal responsibility and leadership "as iron sharpens iron, so one man sharpens another" (Proverbs 27:17) can reinforce these interventions, framing ART as an act of strength and responsibility. Reflecting on the above findings, the paper affirms that incorporating religion, culture, and science in HIV interventions in Kenya serves as an essential effort towards addressing its prevalence and achieving sustainable development. It is therefore an approach with long-term successes that ensure the achievement of good health and well-being.

5. Conclusion

The prevalence of HIV in Kenya has made it difficult for the country to achieve sustainable development. The findings showed that HIV prevalence in Kenya has affected the achievement of good health and well-being, which is a third goal of the Sustainable Development Goals and an important pillar towards achieving sustainable development. The findings showed that the prevalence of HIV prevents the achievement of sustainable development because it promotes economic hardship, affects human capital and reduces life expectancy as well as increasing mortality rates. The prevalence of HIV in Kenya was found to have undermined mental stability and reduced economic investments and opportunities. Moreover, the prevalence of HIV in Kenya has reduced labor supply, business and economic productivities, increased the cost of health services, thus promoting chronic poverty. Addressing HIV treatment and prevention in Kenya requires a multidimensional approach that goes beyond conventional biomedical strategies. The integration of religion, culture, and science presents a viable pathway to improving treatment adherence and reducing stigma within diverse communities. By engaging religious leaders as health advocates, HIV interventions can leverage faith-based teachings to reinforce the importance of seeking treatment thus overcoming the prevalence and its effects on sustainable development. The paper found that collaborating with traditional healers further strengthens trust in ART, bridging the gap between modern medicine and indigenous healing practices.

This paper recommended that scholars and policymakers should understand that the prevalence of HIV would be addressed by this integration of religion, culture and science. The paper recommended that the interplay between religion, culture and science should be understood and its integration into the treatment should be made compulsory because it constitutes an essential holistic approach that promotes the success of HIV treatments in Kenya. The paper recommended future studies in this interplay between religion, culture and sciences in the areas of treatment and economic growth as well as HIV prevention and poverty reduction in Kenya. The other recommendation is that policymakers, healthcare providers, and community leaders should work collaboratively to foster this interplay and integration. They should

equally create awareness in the community to persuade people to accept this integration, and persuade them to adhere to all HIV treatments originating from this integration.

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