Reducing HIV Transmission in Limpopo, South Africa

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Human immunodeficiency virus (HIV) is a virus that attacks the immune system, and over time, it can cause acquired immune deficiency syndrome (AIDS), which leaves the body unable to protect itself (Avert, 2021). HIV is believed to have originated in Africa in the 1920s as a disease from chimpanzees (Marabele et al., 2020). There is even some documentation of infections in the 1950s that originated in the same region; however, by the 1980's it had spread across the world to become a global pandemic. At this time, scientists and researchers had begun to understand what HIV was and how it affected the human body. By the mid-1990s, treatments had been developed to slow the course of HIV and efforts began in earnest to slow its spread. The Joint United Nations Programme on HIV and AIDS (UNAIDS) developed the 90-90-90 goals in 2014 in an attempt to outline the reachable goals that would help control the HIV/AIDS epidemic. The triple 90 stands for 90%, and the goal was to have 90% of individuals living with HIV aware of their HIV positive status, 90% of people living with HIV will be receiving effecting antiretroviral treatment, and 90% of people who are receiving treatment, will be virally suppressed by 2020. Since then, many programs and interventions have been created in order to reach the UNAIDS 90-90-90 goals. While the 2020 deadline was not met, HIV prevention programs and interventions continue to use the 90-90-90 goals as their target goal (Avert, 2021).

While HIV is a global pandemic, the prevalence of HIV is not equally distributed across the world. Due to health disparity, some regions are at higher risk than others. South Africa has the highest prevalence of HIV in the world, with 20% of the population living with the infection (Mabunda et al., 2019). Limpopo, the northernmost province of South Africa, which has rates

just under the national average for South Africa, will be the subject of this paper. This province has the highest percentage of black Africans, one of the highest rates of poverty and unemployment in South Africa, and limited access to western biomedical healthcare. The culture in this region is very patriarchal, giving women and girls little independence or autonomy. These gender roles leave women and girls with less control over HIV transmission prevention (Braithwaite, & Haddad, 2020). As of 2017, the prevalence rate of people living with HIV in Limpopo is 17%, with women and girls being the worst impacted population (Moshidi et al., 2021). Individuals living in rural areas of Limpopo have even less access to healthcare and education and have higher rates of poverty than their urban-dwelling peers, further increasing the impact of HIV on this population.

Due to high rates of poverty, and limited access to biomedical healthcare, Limpopo has a large number of diverse traditional ethnomedical healers. These healers are often herbalists, utilizing the diverse plant life in the area for their medicinal properties (Maema et al., 2016). Many of the traditional ethnomedical healers in rural Limpopo also practice a combination of personalistic and naturalistic systems and include divination and witchcraft (Braithwaite et al. 2020). These healers generally come from one of four ethnic groups in Limpopo, the Pedi, Vendas, Tsongas, or Zulu peoples, with Pedi making up more than 50% of the population both of traditional ethnomedical healers and the general population of Limpopo (Maluleka, 2020). These traditional ethnomedical systems are often based on religious practices. Traditional ethnomedical healers from all of these groups included both men and women practitioners and are much more accessible to people living in rural Limpopo than biomedical health practitioners (Braithwaite et al., 2020). In most cases, traditional ethnomedical healers in Limpopo,

specifically from the Pedi ethnic group, will refer patients to biomedical health practitioners if they feel it is necessary; however, working with biomedical health practitioners is not often done (Davids et al. 2014). During South African apartheid, these traditional ethnomedical practices were outlawed and pushed to the fringes of society. Due to much of Limpopo being rural and the population having one the lowest number of Afrikaans, traditional ethnomedical healing practices survived this outlawing. Although these laws have been lifted, they resulted in a deep mistrust of biomedical health practitioners brought by the colonizing population, which is still felt today in much of Limpopo and thought South Africa (Maluleka, 2020).

There are cultural beliefs and practices in Limpopo that affect the spread of HIV in the province. In many instances, the concept of HIV and AIDS was not understood as it would be in a western biomedical setting. Individuals often linked illness and death from HIV and AIDS with a lack of morality or humanity due to moving away from traditional ways of living (Posel et al., 2007). This belief is prevalent in both older and younger generations. HIV/AIDS is seen as a punishment for living in a way that is against tradition, as opposed to seeing it from a biomedical perspective as an infection whose spread can be lessened through western public health interventions. This type of thinking and belief system impacts societal norms and moves communities away from modern western ideologies. The idea of HIV being a punishment puts a stigma on it because the prevailing belief is that it was brought on by the immoral actions of an individual (Posel et al., 2007). These beliefs make it necessary for HIV prevention strategies to be modeled to fit a culture that does not see the disease from a biomedical perspective. Including traditional ethnomedical healers in HIV prevention and treatment programming can help build stronger programs that can be delivered in a more culturally appropriate manner.

One of the major contributors to HIV transmission in Limpopo is a lack of testing for HIV and adherence to antiretroviral treatment after a positive diagnosis (Mabundi et al., 2019). When individuals do not know their status, they are less likely to take precautions that will lower the likelihood of transmission. Some factors that lead to a lack of testing and a lack of treatment adherence are related to poverty, such as access to medical facilities, lack of community health staff and programs, and availability of tests and treatments. Other factors are more cultural in nature, such as beliefs that HIV infection is caused by witchcraft or a moral failing, along with a desire to seek out a traditional healer over a biomedical health practitioner. With proper long-term antiretroviral treatment, HIV can be suppressed within the patient to prolong life and prevent transmission to others (Moosa et al., 2019). Attempts have been made, with varying successes across the continent of Africa, to utilize traditional ethnomedical healers in some way to aid in the prevention of HIV. The Intervention Mapping planning approach to public health intervention has proven to be modifiable in order to create culturally relevant public health intervention programming (Fernandez et al., 2019). Intervention Mapping, a six-step approach public health program development, can be modified to create a culturally relevant HIV intervention program in Limpopo, South Africa. The six steps of Intervention Mapping are assessment & problem analysis, the establishment of performance objectives, selection of intervention strategies, program creation, program implementation, and program evaluation. For the sake of this paper, implementation will only be outlined as a theoretical process, and evaluation will be a description of proposed evaluation processes. One of the strengths of utilizing an Intervention Mapping approach to a public health intervention with multiple cultures is that it is inclusive and addresses the needs of the community through community involvement.

Step one of the Intervention Mapping, public health program development model, is a needs assessment and problem analysis. The first analysis is done by reviewing the literature outlining the HIV problem in the province of Limpopo. Much of this is quantitative data. The problem, as defined for the sake of this intervention, is the high incidence rate of HIV due to uncontrolled transmission and new infections. The prevalence of HIV in Limpopo as of 2017 is 17%, which has increased in the past decade. This is likely due to a combination of new infections, as well as extended life years due to the successes of antiretroviral treatment programs implemented by the South African government in both 2004 and 2016 (Moshidi et al., 2021).

An assessment of current resources determined a need to partner with several organizations. The first is the Hlokomela HIV educational and treatment program. This group targets individuals who work in agriculture (Hlokomela, 2021). This organization Is already working with a small portion of the target population and would be a beneficial partner. UNAIDS and the South African government also have HIV/AIDS programs and would prove a beneficial partnership. Lastly, the local Department of Education in Limpopo would be a beneficial partner in providing spaces for classes and other program activities. They currently partner with groups to improve HIV/AIDS education for children as well as improve equity for women and girls, which is a known high risk group in this region.

The population targeted to benefit from this intervention is adults living in rural areas of Limpopo who are more likely to seek out a traditional ethnomedical healer than a biomedical health practitioner. Limpopo has large rural areas with minimal access to community health education, HIV testing, and antiretroviral treatments. Women, especially those who are married or in long-term committed relationships, are at the highest risk of

contracting HIV in this region (Mabaso et al., 2019). This shows a distinct need for additional training of ethnomedical and biomedical practitioners to impart ways in which women can have conversations with their partners about HIV testing and transmission prevention. Black Africans and those living in poverty are disproportionately affected by HIV in South Africa (Mabaso et al., 2019). Living in a rural area can impact the ability to be tested and seek treatment for HIV. Of those who seek treatment for HIV in Limpopo, only 61% of them will adhere to treatment long term. This lack of treatment adherence results in a lack of viral suppression, viral mutation, and an increase in viral transmission (Mabunda et al., 2019).

60% of the people of Limpopo will seek medical care from a traditional ethnomedical healer instead of seeking care at a biomedical healthcare facility (Semenya & Potgieter, 2014). This means the stakeholders in this program are biomedical health practitioners who diagnose and prescribe HIV treatments, traditional ethnomedical healers who can bridge the gap between patients and biomedical health practitioners, the underserved populations in rural Limpopo, and the local government. Ethnographic mapping would be done in this step in order to help understand the communities in which this program will be implemented. Surveys and interviews of adults in rural communities should be administered to determine feelings and motivations behind seeking out medical care and what types of providers these communities generally seek medical care from. These surveys can convey which traditional ethnomedical systems are most prevalent in the region and how often they are sought out before a biomedical health practitioner. Surveys concerning knowledge of HIV transmission, treatments, and perceived risk of infection should also be administered. These surverys would determine the type of education the

traditional ethnomedical healers in this program would need to in order to become community health workers. They would also gauge the barriers of understanding between ethnomedicine and biomedicine. Lastly, surveys and interviews of the traditional ethnomedical healers should be completed to gauge knowledge of HIV infection, current treatments administered by the healer, and personal views of biomedical healthcare and biomedical healthcare practitioners to gauge willingness to work with them. These surveys will also help create an outline for the educational goals of the traditional ethnomedical healers who would like to be a part of the program.

Step two is to establish performance objectives based on the needs assessment and the cultural practices of Limpopo. Only 78% of men living with HIV in Limpopo know their positive status. Statistics for women living with HIV in Limpopo who know their status is higher at 89% (Jobson et al., 2019). This shows the need for improved testing, especially targeting men in this region. The first performance objective is to increase HIV testing in rural Limpopo. The goal of this is to reach the UNAIDS benchnmark of 90% of people living with HIV knowing their HIV status.

Antiretroviral treatment adherence is imperative to slowing the spread of HIV to uninfected individuals (Avert, 2021). To be effective, antiretroviral treatment adherence needs to be at 95%, though some more recent studies show 90% is proving to be a valuable adherence marker (Avert, 2021). With Limpopo, antiretroviral treatment adherence rates are only at 61%, with rural areas faring worse than their urban counterparts (Mabunda et al., 2019). These statistics show a need for better treatment adherence, so the second performance objective is to increase antiretroviral treatment adherence with the low adherence population in rural Limpopo to reach the UNAIDS 90% marker.

The people in rural Limpopo seek out traditional ethnomedical healers more than biomedical healers (Semenya & Potgieter, 2014). Most traditional ethnomedical healers do not view HIV as an ailment that is treatable by the type of healing they perform (Posel et al., 2007). These healers will then often refer their patients to biomedical health practitioners for testing and treatment in the cases where HIV is suspected (Davids et al., 2014). Even in cases where a traditional ethnomedical healer suggests a referral, access to a biomedical facility may be limited. Despite this referral, whether or not it is successful, there is still marginalization of traditional ethnomedical healers, by biomedical institutions (Maluleka, 2020). This shows a disconnect between suspecting HIV status and the ability to be tested or receive treatment. The third performance objective is to create better coordination and relationships between traditional ethnomedical healers and biomedical health practitioners. This will improve the ability for more people to be tested for HIV and get treatment if a positive status is determined. This relationship will also improve treatment of traditional ethnomedical healers by biomedical practitioners.

In rural Limpopo, there is a lack of education concerning the prevention of HIV, its treatment, and the need to adhere to a treatment plan. Much of this is due to living far from biomedical health facilities and a distrust of biomedical healthcare practitioners in rural Limpopo (Mabunda et al., 2019). Traditional ethnomedical practitioners are ideal candidates to help educate the rural population since they are respected members of the communities in which they serve. In many cases they are also the primary health care provider for more than half of the population. What also makes traditional ethnomedical healers ideal educators is that they can convey the information in a culturally relevant manner that will be understood by the patient, this is especially important when discussing ways in which

married women can protect themselves and their children from contracting HIV. The fourth performance objective is to provide HIV education to traditional ethnomedical healers to create a sustainable community health workforce. This workforce can help educate the population and fill in the gaps where biomedical health care is lacking and offer culturally appropriate health information to women.

Step three is to select the intervention strategies that are best suited for the culture and environment in Limpopo. It has been shown in the cases in Mozambique, Namibia, Ghana, and Nepal, that traditional ethnomedical healers can be trained to be an integral part of HIV prevention in rural areas with limited access or trust in biomedical healthcare (Audet et al. 2017; Chinsembu, 2009; Krah et al. 2018; Poudel, 2005). The program proposed, in this step, is to train traditional ethnomedical healers in Limpopo to act as community health workers based on the program design in Nepal (Poudel et al., 2005). The goal of this is to educate their patients about HIV prevention and treatment, aid in HIV treatment adherence, and act as a support for individuals needing help with biomedical healthcare navigation, while still maintaining their current cultural health care practices. Part of testing and treatment adherence education will include helping individuals to receive biomedical healthcare as well as following up with patients who have started antiretroviral treatment to assure that they are continuing to adhere to their treatment plan.

It is imperative at this point to include individuals from each of the stakeholder populations in planning sessions. The three primary groups who will be working in this program are traditional ethnomedical practitioners, biomedical healthcare practitioners, and adults living with HIV or at higher risk of contracting HIV infection in Limpopo. Support from local governments is needed in order to assess available resources for long-

term compensation for traditional ethnomedical healers after the program has been created and implemented.

Research by Maluleka (2020) states that there are three primary cultures with ethnomedical systems in Limpopo, the Pedi, Vendas, and Tsongas peoples. While there are also Zulu peoples living in Limpopo, their population is quite low in this region. The Pedi peoples have the largest population, and also a more significant proportion of traditional ethnomedical healers in the region are of this ethnicity. This means that the most successful program will allow for traditional spiritual practices of each group to be upheld and may require classes to be held separately for each group. Many of the cultural beliefs and societal structures are similar between these groups. To create an educational curriculum for traditional ethnomedical healers, planning should include traditional ethnomedical healers who have been found to be respected in the community, local government officials, and the individuals who will be conducting the training. The concepts that need to be covered in these educational programs would be HIV prevention strategies, HIV treatment options, the importance of testing and treatment adherence, HIV transmission and treatment misconceptions, and prevention strategies specific for high risk groups such as woman. These concepts need to be presented to the people in Limpopo in a way that is relevant to the traditions and cultures of these people. Evaluations will be made before and after educational programming has been facilitated in order to gauge knowledge needed and then knowledge acquired from the programming.

Step four is to organize the discoveries made in steps one through three and develop a successful program that utilizes traditional ethnomedical healers as community health workers. The scope of this project will include education for ethnomedical

practitioners, building relationships between the traditional ethnomedical healers and biomedical health practitioners, and to define the new community health roles these healers will assume. The individuals involved in helping to develop the program are: health educators recruited from universities or post-secondary schools in the area, biomedical health practitioners who treat HIV patients in rural health facilities, and local government officials who are part of the established HIV/AIDS programs. The resources needed will be classroom space and materials for the educational programs and compensation for participating ethnomedical practitioners who have lost work due to taking part in the program. Partnership with Hlokomela, an HIV education and treatment program. This program is already working in Limpopo and can aid in the curriculum design, and program sustainability methods (Hlokomela, 2021)

Prior to implementation, program developers will recruit traditional ethnomedical healers and biomedical health practitioners who would like to take part in the program. Surveys will be given, and group discussions will be conducted prior to the educational programming to determine what is known already, what needs to be taught, and what cultural beliefs may be a barrier to the program as was done in the programming in Nepal (Poudel, 2005). The educational program will consist of of classroom education as well as building relationships between ethnomedical and biomedical practitioners. Once the program design has been completed, it will be pretested and evaluations will be made. Program evaluation process will include surveys to determine if the educational goals were met. This will be followed by focus groups of the traditional ethnomedical healers, biomedical health practitioners, and program developers. These individuals will meet after

testing materials to discuss what was learned and discuss the concepts that the post program surveys proved needed work.

Step five is the implementation and sustainability of the program. After the pretesting has been completed, evaluated and modified, implementation can begin. Government officials will be consulted to determine whether the program fits within the HIV/AIDS treatment programs already implemented as well as the long-term sustainability of the program. The role of traditional ethnomedical healer as community health worker needs to be codified by the current community health centers and programs so that compensation can be granted and the role can be sustained once the next generation of healers is trained. This codification can also include culture-bound syndromes which biomedical practitioners can not cure, so that these patients can be referred to appropriate ethnomedical healers in the program to seek care. This will also offer greater credibility to traditional ethnomedical healers for groups who do not believe in their value.

Program sustainability is partially dependent on the training given to apprentices or mentees by the traditional ethnomedical healers themselves. Most traditional ethnomedical healers in Limpopo learned their skills directly from another healer, whether they are a family member or through an apprenticeship (Maluleka, 2020). In order to train new healers, current healers must take on apprentices. The lessons learned in this program will need to be passed on along with other traditional health knowledge during this apprenticeship period.

As listed in step two, the performance objectives are to improve access to testing, improve treatment adherence, coordination between traditional ethnomedical healers and biomedical practitioners, and improved HIV prevention education. All of these goals are

reached through effective training and implementations of traditional ethnomedical healers as community health workers and building relationships between traditional ethnomedical healers and biomedical practitioners.

Step six is the evaluation plan. To evaluate whether the program was successful or not will include repeat surveys of the traditional ethnomedical healers to see if they are continuing in their roles as a community health worker and whether they will pass on the role to their apprentices. Performance objectives will be evaluated through statistical analysis. This will determine if testing has improved, and antiretroviral treatment adherence has improved. Surveys and focus groups of the community will also be performed to evaluate whether HIV misconceptions persist, whether there is greater knowledge in how to find testing and treatment for HIV, and whether or not the perception of the traditional ethnomedical healers turned community health workers and adherence partners is still high.

While the emphasis is on training the traditional ethnomedical healers to become community health workers, there will also be an emphasis placed on partnership with biomedical health practitioners. There is a need for biomedical health practitioners to continue to see these healers as partners who can relieve some of the pressure of testing and treating people living with HIV. If this program proves to be a success, later iterations can be modified to include training in the administration of HIV tests and proper personal protective equipment (PPE) usage. PPE usage is known to be underutilized by traditional ethnomedical healers for various reasons, including lack of education and lack of availability (Audet et al., 2020). Utilizing traditional ethnomedical healers as community health workers

has been successful in many areas across the world; Limpopo South Africa should also be able to find success in a program with that goal in mind.

This evaluation will also include surveys, interview and focus groups. This portion of the evaluation will determine the impressions of all the stakeholders in the program. In order to be successful long term, all stake holders need to feel as if they are benefiting from the program. These are also the groups who have the most information on what is and is not working, as well as what and how to improve the program.

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