THE EFFECT OF SOCIAL BEHAVIORAL AND LITERACY RATE TOWARDS THE TRANSMISSION OF HIV IN RWANDA

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***Abstract*—**Yes Rwanda as a country is aspiring to become a great country which in fact has been proven since 1994. With the fast development but also adoption to public health issues that not only imposes a threat to the country but the world in general. Human Immunodeficiency Virus (HIV) is getting out hands especially when it comes to the public health of Rwandans. Studying the social behaviours and knowledge that Rwandans have towards HIV could mean a lot through fighting HIV

Keywords—HIV; Transmission; Prevalence rate

I. INTRODUCTION

Until a batch of people within a given geographical location dies as a result of similar syndromes, do the governments and health sectors realise that there is a bug within a health system that calls for action to fix. Right before 2020, ideally, before the pandemic COVID 19 that has left the whole world in a gap of less attention to other serious health issues in a hunt of this pandemic resolution, there exists a deadly Human Immunodeficiency Virus (HIV) that is increasingly eating up a huge population as victims around the globe. According to UNAIDS(2019), an estimate of about 44.0 million people are living with HIV and, about 2.3 million infected people that rise on a yearly basis[1]. This is clear that, with consciousness, this situation should not remain soft-handed. But what do we mean, **soft-handed**? Attentively, the worst case scenario is that Africa is the top mother of HIV infection with about 70% of the total population living with HIV[2]. It is now clear to me why everyone on African continent should be worried and scratching their heads to find concrete measures upon the prevention of the transmission of this virus, and yes! 64% percent of the globally infected people are only living in sub-saharan Africa. Identifying the problem is one way towards solving it. Centres For Disease Control And Prevention (CDC)[3] mentions ways on how HIV is transmitted which clearly shows that this virus spreads from infected person to another as a result of social behavioral. Also, the World Health Organization (WHO) in its key facts [4]about HIV/AIDS shows that, HIV virus is becoming a manageable chronic health condition. *In 2018, 62% of adults and 54% of children in the total population of people living with HIV in low -and middle-income countries were receiving lifelong antiretroviral therapy (ART)*. All these people are given education about HIV and hence limiting unaware transmission of HIV to other individuals who are not infected. If social behaviors in the context of transmission of HIV in a given geographical location are carefully studied with increasing literacy of HIV, the virus transmission could be managed to limited or no infections.

II. BACKGROUND

With an aspiration to reach both the statuses of Middle Income Country (MIC) by 2035 and High Income Country (HIC) by 2050 [5], **Rwanda** has about 0.8% of the total population that are living with HIV [6], this number can not be diminished. This paper focuses on studying the social behavioral practiced by Rwandans in relation to the transmission of HIV. In addition, the generalization of the target group's HIV status will be evaluated in correlation to the literacy rate of HIV. With the findings, ways to prevent transmission of HIV from one individual to another could be advocated.

III. Objectives

The main objective of this study is to evaluate the effect of social behaviours and literacy rate in correlation with transmission of HIV in Rwanda. To achieve this, the following objective breakdown will be followed:

1. Assessing HIV prevalence rate among the target group
2. Evaluating the literacy rate/HIV knowledge in correlation to the HIV statuses among the target group
3. Analysing social behavioral practices among the target group in relation to HIV transmission.

IV. Related work

Community knowledge and information communication gaps on HIV/AIDS in Iringa _ This is a study that was done in Iringa Municipality, Tanzania [7] by a couple of authors: S.F. RUMISHA, K.P. SENKORO, E. NGADAYA, E.H. SHAYO, B.K. MAYALA, R. MTANDU and L.E.G. MBOERA. It was carried out to determine community knowledge and information communication gaps on HIV/AIDS in Iringa Municipality, the study reported that the knowledge of HIV was common with people that had at least a primary level of education with the rest of the group that struggles to get HIV/AIDS messages. Hence this is clear that literacy rate could impact people living with a geographical location especially when it comes to the transmission of HIV. Having enough information about HIV could encourage people to practice some social behaviors that could prevent them from being infected by HIV.

V. Methodology

In order to achieve the objectives that were listed above, a couple of materials and methods were used as follow:

A. *Dataset Acquisition*

Research was done on various dataset sources that are relevant to this study. The Demographic and Health Survey Program (DHS) was found more reliable. A survey that was done in all provinces of the country which involved about 4882 participants was used in this study[8].

B. *Data Cleaning*

A dataset that was downloaded from DHS came to life through merging different data sheets and also cleaning it by dropping what was not relevant to this study and also taking care of missing values.

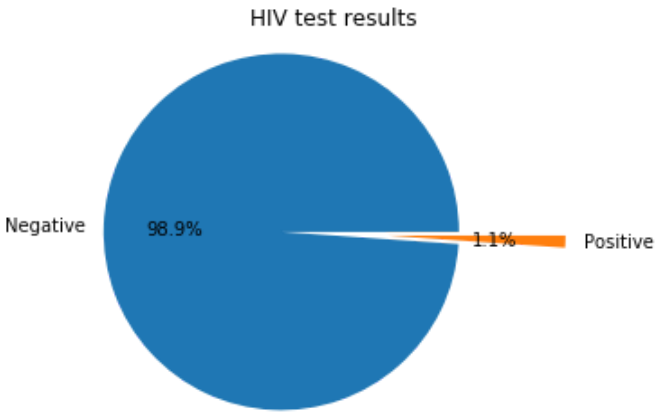
C. *Analysis*

Data analysis was done using python programming language version 3.8.1. Both Jupiter notebook and pycharm in anaconda environment were used as editors in wrangling the dataset. The requirement of the use of python libraries was also necessary since pandas, numpy and matplotlib among other libraries come to play through getting the most from the dataset.

VI. Results

Out of 4882 participants in the survey, 98.9 % were not infected by HIV (their HIV statuses were negative) leaving 1.1% that were found living with HIV (their HIV statuses were positive)

Figure1 HIV test results from the target group



Out of 1.1% that were found infected the analysis shows that the prevalence rate of HIV does not lean much on the region of residence. Both rural and urban had almost the same numbers of infected, just a difference of 3 people that come from rural areas.

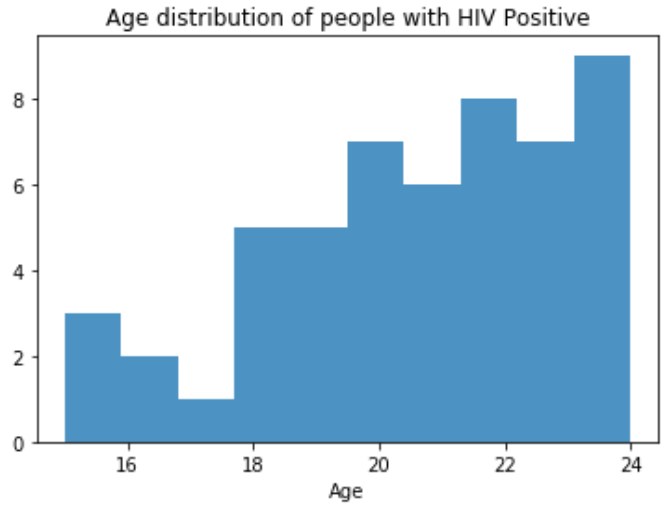
Table1. Residential Demographic breakdown among the

sampled group.

	Urban Areas	**Rural Areas**
HIV positives	25	28
HIV negatives	1240	3589

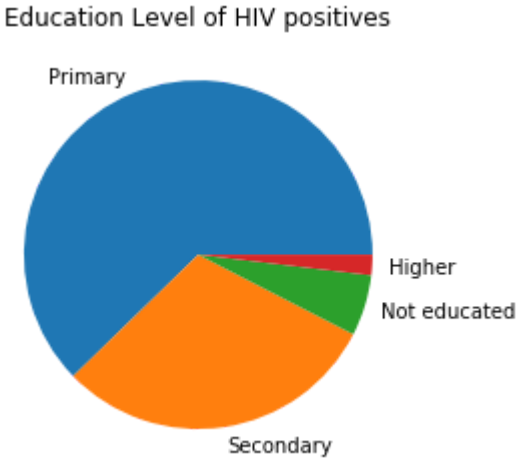
Focusing on the age group with people that are HIV positive, it shows that a big percent follows between 18 years old to 24 years old.

Figure 2. Age distribution of people with HIV positives



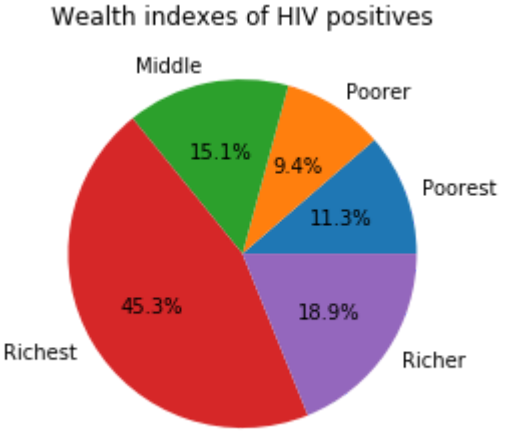
Also, Among the infected, it was observed that a big portion had primary level education. and very few show to have attained a high education level.

Figure 3. Education level among the HIV infected



Even though a big percent is under a classification of less educated, it is surprising that ⅓ of these people are economically state with a title '*rich*'

Figure 4. A display of wealth indexes among the HIV infected people



VII. Conclusion

Connecting the dots it is clear that people who are mostly infected are youths especially from age 18 - 24 and most of these people are economically stable. The age of 18 - 24 with females, are the ages where they are highly fertile and of cause, high desires for sex. Also males on such ages are not safe because there is a high demand to have sex due to vigourous reproductive body development hence leads into hunting for sexual practices which is one of the important ways for transmitting or catching HIV from one individual to another.

In schools or education institutions people have a chance to be exposed to the information and some practices that they could use to prevent HIV. It is clear that ⅓ of the population that are infected in our sampled group did not have a chance to attend secondary school where most of the information about HIV is shared. Therefore studying social practices and having platforms to educate people about HIV could mean a lot in fighting against HIV transmission from on to another.

Classification models that could predict one's social behaviours and assessing their HIV knowledge could also come into play to predict whether one will catch HIV or not and give them advice on how to protect himself/herself

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