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Impact of HIV/AIDS-related social stigma on HIV testing, treatment, and care among adults in Lesotho, 2016–2017

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Abstract

Impact of HIV/AIDS-related social stigma on HIV testing, treatment, and care among adults in Lesotho, 2016–2017

By Kiran S. Lalani

Introduction: Since the first reported cases in 1981, approximately 79.3 million people have become infected with HIV. In 2020, it was reported that an estimated 37.7 million people were living with HIV/AIDS, with more than half of them residing in eastern and southern Africa. According to the UNAIDS, Lesotho currently has the second highest HIV/AIDS prevalence in the world (22.8%) among adults aged 15 to 59 years. Despite advances in testing, treatment, and care there are still social barriers in place that continue to complicate these HIV/AIDS control effects. One social barrier that has been emphasized in biomedical literature is social stigma. As such, understanding the association between social stigma and HIV/AIDS testing, treatment, and care-seeking behavior is vital in the development of effective interventions to help facilitate access to prevention, treatment, and care programs for vulnerable populations in Lesotho.

Methods: This study analyzed cross-sectional data collected as part of the Population-based HIV Impact Assessment (PHIA) surveys between November 2016 and May 2017 in Lesotho. We analyzed data from individuals who completed the PHIA adult interview, biomarker testing, and the additional HIV/AIDS-knowledge and attitudes interview module (N = 6,528). Answers from the HIV/AIDS-knowledge and attitudes interview module were used to determine the association between HIV/AIDS-related stigma and HIV/AIDS testing, treatment, and care using logistic regression. Demographic characteristics of interest were also examined.

Results: Awareness of HIV status was positively associated with willingness to buy vegetables from a vendor with HIV/AIDS (87.1%; OR = 2.2; 95% CI 1.3, 3.7), agreeing that HIV-positive children should be allowed to attend schools with HIV-negative children (87.2%; OR = 2.0; 95% CI 1.1, 3.3), agreeing that people hesitate to get tested due to fear of a positive result (77.3%; OR = 1.5; 95% CI 1.0, 2.3), and agreeing that people talk badly about people living with HIV/AIDS (PLWH) (60.7%; OR = 1.4; 95% CI 1.0, 2.0). Age was positively associated with awareness of HIV status (aOR = 1.3; 95% CI 1.2, 1.4), being on antiretroviral treatment (ART) (aOR = 1.2; 95% CI 1.1, 1.3), and being virally suppressed (aOR = 1.2; 95% CI 1.1, 1.3), when controlling for cumulative social stigma score, gender, and wealth quintile. Gender was positively associated with awareness of HIV status (aOR = 1.8; 95% 1.3, 2.5) when controlling for cumulative social stigma score, age, and wealth quintile.

Discussion: The results of this study indicate that HIV/AIDS-related social stigma is statistically associated with awareness of HIV infection, in turn affecting one's testing and care-seeking behavior. Further research is needed to understand the association between HIV/AIDS-related stigma and HIV testing, treatment, and care among the adult population to help Lesotho reach and surpass its 95-95-95 target by 2030.

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Introduction

HIV/AIDS is and remains a daunting global health threat. Since its first reported cases in 1981, approximately 79.3 million people have become infected with HIV and over 36 million have died of AIDS-related illnesses. In 2020, an estimated 37.7 million people were living with HIV/AIDS, resulting in a global HIV/AIDS prevalence of 0.7% among adults [1]. Most people living with HIV/AIDS (PLWH) are in low- and middle-income countries, with the hardest hit region being East and Southern Africa [2]. According to the World Health Organization Africa (WHO Africa), nearly 1 in every 25 adults (3.6%) living with HIV resides in East or Southern Africa, accounting for more than two-thirds of the PLWH worldwide [1, 2]. One of the highest prevalence of HIV/AIDS is reported in the landlocked country of Lesotho, located within the Republic of South Africa [3].

Lesotho is home to 2.1 million individuals and holds the title of having the second highest HIV/AIDS prevalence in the world [4, 5]. According to the 2019 UNAIDS report, Lesotho is home to over 340,000 individuals with HIV/AIDS, with an HIV/AIDS prevalence of 22.8% among adults aged 15 to 59 years [6]. Lesotho is classified as a lower middle-income country, with 57% of its population living below the poverty line. High poverty levels, coupled with high HIV/AIDS prevalence, have led to the country's low life expectancy of just 52 years for men and 55 years for women; the number one cause of death is HIV/AIDS. To reduce the number of new infections and limit the further spread of HIV/AIDS, UNAIDS declared the 90-90-90 strategy in 2014 [6]. This strategy aims for 90% of all people living with HIV/AIDS to know their status, 90% diagnosed as positive to be on antiretroviral therapy (ART), and 90% of those diagnosed and on ART to be virally suppressed by 2020 with the goal of 95-95-95 by 2030 [6]. As of 2020, Lesotho reported

having 93% of its population living with HIV/AIDS aware of their status, 71% diagnosed as positive to be on ART, and 95% of those on ART to be virally suppressed [6]. Lesotho has also started to see a decline in HIV/AIDS incidence from 23,000 new infections in 2015 to 13,000 in 2018 [3]. This is due to the large expansion of HIV/AIDS prevention programs and access to ART. However, studies show that there are still additional barriers that impede access to HIV/AIDS testing, treatment, and care preventing Lesotho from reaching their 2030 goal.

Barriers

According to the UNAIDS Global AIDS Report, in an ecological analysis of data from 46 countries in sub-Saharan Africa, there was an inverse association between household income and HIV/AIDS prevalence [7]. Scientists hypothesize that inadequate income and limited assets deprive PLWH of tangible resources that they can use to prevent and treat HIV/AIDS. These resources include transportation expenses to visit health facilities, medication expenses, and even access to adequate and nutritious food necessary to optimize the benefits of ART medications that they receive. The Global AIDS Report also concluded that unequal gender norms limit the agency and voice of women and girls reducing their access to education and economic resources, stifling their civic participation, and contributing to the higher HIV/AIDS risks faced by women in this setting [7]. Additionally, other studies show barriers such as age, language, religious and cultural beliefs, criminalization laws, stock-out of medications, employment status, marital status, rural location, and education level as obstacles to HIV/AIDS testing, treatment, and care [7-25]. However, the most pressing and cited obstacle in the HIV/AIDS epidemic is the social barrier of stigma because it relates to discrimination against people living with HIV or thought to be living with HIV [7-8, 31-37].

Stigma

First coined by Erving Goffman in 1963, stigma is described as "an attribute that reduces a person in the mind of others from a whole and usual person, to a tainted and discounted one" [38]. Such attributes or labels, determined by the controlling social group, are created based on some physical, social, or behavioral trait perceived to be divergent from the group norms [39-41]. These labels produce stereotypes (negative beliefs and attitudes assigned to social entities that are labeled), with variable levels of negative social consequences of prejudice (endorsement of stereotype), and discrimination (differential and disadvantaged treatment of the stigmatized) [42-43]. As such, these labels can easily disgrace or deny the individual dignity, respect, or the right to fully participate in the community [43].

When looking through the medical lens, stigma is found to be greatest when the condition is associated with behavior perceived to be deviant or when the cause of the condition is viewed as the individual's responsibility [44]. This becomes particularly strong when the illness is associated with behavior that might be morally sanctioned by some people, is unalterable, incurable, severe, degenerative, and leads to readily apparent physical disfigurement or an undesirable and unaesthetic death [44-45]. In the context of HIV/AIDS, HIV/AIDS-related stigma is described as a "process of devaluation of people either living with or associated with HIV and AIDS" [46]. This idea stems from the underlying stigmatization of two of the primary routes of HIV/AIDS infection that are viewed as the responsibility of the individual: sex and intravenous drug use [47]. Currently, AIDS is incurable, degenerative, often disfiguring, and associated with an "unfavorable death" [48]. It is often incorrectly thought to be highly contagious through casual contact and a threat to the community, making the disease, in Nzioka's nomenclature, "undesirable" [49]. As such,

HIV/AIDS has all the characteristics associated with being a stigmatized medical condition. With that, we can analyze stigma related to HIV/AIDS using the idea Goffman stated above. As such, HIV/AIDS-related stigma can be further divided into social and self-stigma [38].

Social Stigma

Social stigma (also known as public stigma) occurs when a person is disapproved of or discriminated against, based on perceivable social characteristics that serve to distinguish them from the other members of society [38]. According to the HIV Stigma Framework model, this can be broken down into perceived (or anticipated) and enacted stigma [50].

Perceived (or anticipated) stigma refers to the individual's subjective awareness of discriminatory and prejudicial attitudes from people around them. In the context of HIV/AIDS, perceived stigma refers to the awareness of negative social perceptions towards HIV/AIDS and the degree that PLWH expect they will experience prejudice and discrimination in the future [51-52]. Studies show that perceived stigma has strong associations with behavioral and physical indicators of health and well-being among PLWH and how they interact with others. For example, PLWH with perceived stigma may expect poor health care, social rejection, job loss, physical violence, and other forms of poor or unfair treatment regardless of whether they have had these experiences in the past [53]. Evidence from a South African study by Simbayi et al., shows that PLWH who anticipate stigma may be less likely to disclose their HIV/AIDS status to others whom they have had sex with and/or health-care providers to avoid interactions where they expect to be treated poorly because of their status [54]. This not only places the sex partner at higher risk of infection if the partner is less likely to use condoms or other precautions like HIV pre-exposure prophylaxis

(PrEP), but it will prevent the PLWH from accessing tailored and informed healthcare guidance from their provider. Perceived stigma can take an additional toll on these individuals in the form of a chronic stressor [55-57]. A growing body of research shows that chronic stress associated with perceived stigma may further complicate the health of PLWH by contributing to the development of co-morbid illnesses such as heart disease, cancer, and diabetes [55-59].

Enacted stigma, on the other hand, refers to the individual experiencing discrimination because of their status. In the context of HIV/AIDS, enacted stigma refers to the occurrence of discriminatory behaviors enacted against PLWH specifically because of their positive status [51-52]. Studies show that enacted stigma has particularly strong associations with physical indicators of health and well-being among PLWH. For example, PLWH with this stigma may experience poor health care from providers, social rejection from friends or family members, job loss from employers, physical violence and/or marginalization from others due to their status [53]. Like perceived stigma, enacted stigma can act as a chronic stressor that may impact HIV/AIDS disease progression and other co-morbidities among PLWH [55-56].

Self-Stigma

Self-stigma (also known as internalized stigma) occurs when the individual accepts society's negative evaluation (as shown through social stigma) and incorporates it into their personal value and sense of self [59]. In the context of HIV/AIDS, self-stigma refers to accepting and endorsing negative beliefs about PLWH as applying to the self, with ensuring feelings of shame and inferiority due to living with HIV/AIDS [60]. It is accepting of all the negative societal characterizations, labels, and perceptions that are associated with being a PLWH. Studies show

that self-stigma has strong associations with affective and behavioral indicators of health and well-being among PLWH. For example, PLWH with internalized stigma have been shown to have greater depressive symptoms, greater psychological distress, lower self-esteem, and lower well-being [55]. Although many PLWH can develop and maintain positive cognitions regarding their status, those that feel shameful may struggle to do so. Instead, they might feel helpless, feel that they do not deserve care and/or avoid thinking about their status [53].

Stigma in HIV/AIDS Research

HIV/AIDS-related stigma continues to do harm by aggravating HIV/AIDS testing, treatment, and care, thereby allowing progression of HIV/AIDS disease and increasing risks for other health threats that PLWH face. Stigma prevents PLWH from acquiring information and making use of the services they need to protect their health [61]. There have been few studies on the impact of social stigma on HIV/AIDS in Southern Africa. A longitudinal study by Greeff et al., showed that perceived HIV/AIDS-related stigma has a significantly negative impact upon life satisfaction and quality of life for PLWH in five African countries including Lesotho [62]. Additionally, Holzemer et al., reported high levels of HIV/AIDS-related stigma that was related to declined quality of life among PLWH and nurses in five African countries including Lesotho [63]. Dlamini et al., and Makoae et al., also reported a significant relationship between perceived HIV/AIDS-related stigma and self-report of missed medications in five African countries including Lesotho [64-65]. Despite these reports, there have been no studies to our knowledge addressing the prevalence or level of HIV/AIDS-related social stigma in a quantitative manner from the perspective of those experiencing HIV/AIDS-related stigma in Lesotho. As such, to help high-risk countries like Lesotho reach and surpass their UNAIDS 2030 95-95-95 target and have 200,000 or fewer new

HIV/AIDS infections and zero discrimination, we need to document and alleviate the detriment stigma plays in HIV/AIDS testing, treatment, and care. More specifically, we need to understand quantitatively the association between HIV/AIDS-related social stigma and one's HIV/AIDS testing, treatment, and care.

Methods

Study Design and Population

We conducted a cross-sectional analysis of data collected as part of the Population-based HIV Impact Assessment (PHIA) surveys conducted between November 2016 and May 2017 in Lesotho. PHIAs are cross-sectional, household-based surveys, used to assess key HIV/AIDS-related health indicators among several countries in Africa [66]. These nationally representative surveys used a stratified multistage probability sampling design, with strata defined by the 10 districts of Lesotho. For the first stage, census enumeration areas (EAs) were selected within each stratum based on probabilities proportionate to the number of households in the stratum as stated in the most recent census for that country [67]. A stratified sample of 418 EAs were selected among the 10 strata in Lesotho. The next stage consisted of random sampling of the dwelling units/households within each EA at rates that ensured an equal probability of selection within each stratum. The final stage consisted of interviewing all eligible and consenting adults in the selected dwelling unit/household aged 15-59 years. Household interviews were completed by the designated head of household, and adult interviews were completed by remaining family members aged 15 years and above. In half of the consenting households, eligible adolescents aged 10 to 14 years were given adolescent interviews. Adults also supplied data on their children, aged 0 to 14 years, as part of the "children" module of the adult interview. To be eligible, individuals who were present in the selected household at the time of the interview must have slept in the household on the night prior to the date of interview (referred to as the *de facto* population). Emancipated minors, as defined by their country, could complete the household questionnaire as the head of household. Written informed consent was documented via electronic signature of the adult or emancipated minor. The protocol and data collection tools were approved by the Lesotho Research and Ethics Committee and the

institutional review boards at Columbia University Medical Center and the United States Centers for Disease Control and Prevention.

All interviews consisted of a standardized questionnaire. Household questionnaires, given to the head of household, consisted of questions relating to household roster, household characteristics, and economic support. Questionnaires, administered to adults aged 15 years and older, consisted of questions related to respondent background, marriage, reproductive history (among women), male circumcision (among men), sexual activity, children (among adults with reported child), HIV testing and history, HIV status, care and treatment, TB, gender norms, and violence. Questionnaires administered to adolescents aged 10 to 14 years consisted of questions related to sociodemographic characteristics, HIV knowledge, sexual behavior, HIV testing, HIV risk perceptions, alcohol and drugs, HIV stigma, parental support, violence, social norms, intention to abstain, self-efficacy, and assertiveness. Additional modules related to mobility and migration, and HIV/AIDS-knowledge and attitudes were asked in both household and adult questionnaires in Lesotho.

Individuals who completed interviews were offered biomarker testing involving collection of whole blood samples from participants either by venous blood draw, finger prick or heel stick, depending on age. These samples were then used for home-based tests including HIV rapid testing and, depending on the survey, other point of care tests, such as syphilis, CD4 count, and hepatitis B surface antigen. Viral load tests were conducted on blood plasma or dried blood spots from the collected blood samples.

For this study, only individuals aged 15 years and older who completed both the PHIA adult interview and biomarker testing were considered. Our analytic sample only included individuals that also completed the additional HIV/AIDS-knowledge and attitudes interview module as a part of the questionnaire.

Measures

The exposure variables of interest included questions in the additional HIV/AIDS-knowledge and attitude interview module that assessed the impact of perceived and enacted HIV/AIDS-related stigma. The HIV/AIDS-knowledge and attitude interview module was an additional 12-question module that was randomly assigned to 50% of those that responded to the adult questionnaire. Using a study by Ghaffari et al., that factor analyzed HIV/AIDS questionnaires, we were able to determine which of the 12 questions were related to HIV/AIDS-related stigma [68]. Questions that measured HIV/AIDS-related self-stigma, as determined by Zelaya et al., were dismissed from analysis [69]. Additionally, the question "Do you fear that you could get HIV if you come into contact with the saliva of a person living with HIV?" was dismissed due to inconsistency with response variables and not being relevant if HIV positive. The following questions were used to analyze HIV/AIDS-related social stigma:

1. Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had HIV?
2. Do you think children living with HIV should be allowed to attend school with children who do not have HIV?
3. Do you think people hesitate to take an HIV test because they are afraid of how other people will react if the test result is positive for HIV?

4. Do people talk badly about people who are living with HIV or who are thought to be living with HIV?
5. Do people living with HIV, or thought to be living with HIV, lose the respect of other people?
6. Do you agree or disagree with the following statement: I would be ashamed if someone in my family had HIV.

Participants were asked to relay their attitudes towards these question statements by choosing either "Yes," "No," "Refused, or "Don't Know" (which includes not sure/depends). Due to the small sample size of those responding with "Refused," the categories of "Refused" and "Don't Know" were combined. These answers were then tallied together to create a cumulative social stigma score for each participant. Responses to questions 3 through 6 were reverse coded to ensure that the "Yes" response demonstrated the presence of social stigma. As such, "Yes" responses received a score of 2, a "No" response received a score of 1, and a "Don't Know/Refused" response received a score of 0. Cumulative scores ranged from 0 to 12, where 0 means no social stigmatization and 12 is the maximum. Based on this analysis, 10 individuals were removed from the study due to their cumulative score equaling 0 (meaning they responded "Don't Know/Refused" to each of the 6 questions).

The primary outcomes of interest for this analysis included the following key HIV-related health indicators: HIV status awareness, HIV treatment, and viral load suppression status. Each survey respondent was asked to self-report their HIV status by choosing one of the following options: HIV positive, HIV negative, never tested, or don't know/refused (which included unknown status, indeterminate, and results not received). Their final HIV status was confirmed by examining their

HIV serostatus. HIV serostatus is determined via pre-specified HIV testing algorithms that started with all respondents receiving an initial HIV rapid screening test (Alere Determine™ HIV-1/2 Ag/Ab). Those with a nonreactive result were classified as HIV-negative. Individuals with a reactive screening test underwent confirmatory testing using the UniGold rapid HIV test (Trinity Biotech Uni-Gold™ HIV-1/2). Respondents with a reactive screening test result followed by a non-reactive confirmatory test results were retested in parallel in the field. If results were repeatedly discordant, respondents were classified as indeterminate and counseled to attend a facility for a repeat test in 4 weeks, per national guidelines. Those with reactive results on both tests were classified as HIV-positive and underwent an additional confirmatory testing in a satellite laboratory using the BioRad Geenius™ HIV 1/2 Supplemental Assay. Additionally, HIV-positive individuals received biomarker testing related to their CD4 cell count, HIV RNA viral load, antiretroviral (ARV) drug presence, ARV drug resistance, and recency of HIV infection. Recency of HIV infection was determined via a combination of Limiting Antigen Enzyme (LAg-Avidity) Immunoassay, viral load, and ARV results. Based on ARV testing and self-reported HIV status results, respondents' awareness status was classified as either being “Aware of or considered aware because ARVs detectable” or “Unaware and ARVs not detectable, or unaware and ARV testing results missing”. ART status was determined based on ARV testing and self-reported results. Respondents were then classified as either “ARVs detectable, self-reported on ART, or both ARVs detectable and self-reported on ART” or “Unaware or aware, ARVs not detectable and self-reported not on ART, or aware, missing ARV testing data and self-reported not on ART.” Viral load suppression was determined based on values of HIV RNA viral load biomarker testing. Respondents were classified as either “Viral load suppressed (<1000 copies/mL)” or “Not viral load suppressed.”

The demographic variables of interest included age, gender, district, urban/rural classification, wealth quintile, educational attainment, religion, and marital status. Age was a free-text response, which for the purposes of analysis was then categorized into the following groups: 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, and 55-59 years. Respondents were asked to self-report their gender as either Male or Female. District classification was as follows: Maseru, Mafetang, Mohale's Hoek, Leribe, Berea, Quthing, Butha-Buthe, Mokhotlong, Qacha's Nek, and Thaba-Tseka. From this, urban/rural categorization was determined and classified as "Urban," "Peri-urban" or "Rural." Wealth Quintile was determined by their wealth index constructed using the principal components analysis (PCA) on household characteristics and asset ownership variables as per the commonly accepted guidelines by the Demographic and Health Surveys Program (DHS). Categories include lower, second, middle, fourth, and highest. Education attainment levels, current marital status, and religion were self-reported. Categories for educational attainment include "no education," "primary," "secondary," college/university," or "graduate/post-graduate." Categories for religion include "Roman Catholic," "Lesotho Evangelical," "Anglican," "Pentacostal," "Other Christian," "Other Religion," and "Don't Know." Categories for marital status include "Married," "Living Together," "Widowed," "Divorced," "Separated," and "Don't Know."

Statistical Analysis

Survey data for Lesotho were weighted by assigning a sampling weight to each responding sampled unit (household or person) and using that weight to calculate weighted estimates from the sample, known as the base weight. As reported by PHIA, these base weights are adjusted to compensate for nonresponse and noncoverage in the sample to ensure that when used, the base

weights will inflate the responses of the sampled units to population levels. The jackknife method was used to obtain robust variance estimators for the complex survey data [70].

All statistical analyses were conducted using SAS 9.4 (SAS Institute, Inc., Cary, NC). The distribution of demographic characteristics among all respondents and those randomly assigned the HIV/AIDS-knowledge and attitude interview model questions were examined, and the occurrence of each categorical variable was summarized according to frequencies and percentages. Additional measures of self-reported HIV status and prevalence of HIV (confirmed by biomarker testing) were also included. Logistic regression, using the weighted estimates, was conducted to assess the impact of HIV/AIDS-related social stigma scores on the dichotomous HIV indicators (awareness, treatment, and viral load suppression) while controlling for identified confounders.

Results

Study Population

There was a total of 13,072 respondents in the PHIA Lesotho study that completed both the PHIA Lesotho adult interview and biomarker testing. Of these, 6,538 individuals (50.0%) were randomly chosen to answer the HIV/AIDS-knowledge and attitude interview module, of whom 6,528 were further analyzed (**Table 1**). Most of these individuals were aged 15- to 19-years-old (17.7%), followed by 20- to 24-years-old (17.3%) and identified their gender as female (58.7%). Most individuals resided in the Maseru district (25.8%) followed by the Leribe district (16.5%) and Berea district (13.1%). The remaining districts had participants ranging from 3.9% to 9.6%. More than half of participants (53.9%) resided in areas classified as rural, with 6.5% residing in peri-urban locations and 39.6% residing in urban-classified areas. About 70% of the urban-classified areas comprised individuals residing in the districts with the most participants: Maseru (41.2%), Leribe (17.0%), and Berea (11.9%) **(Table 5)**. In terms of education, the highest level that most respondents have attended is secondary (44.8%) followed by primary (40.7%). 71.4% of individuals that were assigned the highest wealth quintile also completed graduate/post-graduate schooling while 46.8% of individuals assigned the lowest wealth quintile stated having no education **(Table 6)**. Additionally, 79.8% of individuals assigned the highest wealth quintile reside in the highly urban-classified districts with the most participants: Maseru (44.0%), Leribe (16.3%), and Berea (19.5%) **(Table 7)**. 39.4% identified as Roman Catholic, followed by Other Christian at 18.9%, and 74.7% as married, followed by 13.1% as widowed. Of the cohort, 20.0% (N=1,302) self-reported an HIV-positive status. With biomarker testing, it was confirmed that 25.2% (N=1,565) of the cohort was HIV positive. 95.8% both self-reported an HIV-positive status and

had it confirmed by biomarker testing. 0.8% (N=11) self-reported an HIV-positive status but had it denied by biomarker testing **(Table 8)**.

Of those with a biomarker-confirmed HIV positive status, 81.1% (95% CI 80.0, 83.3) were classified as being aware of their HIV status or were considered aware because of the presence of ARVs in their biomarker test. Of those that were aware, 90.8% (95% CI 89.1, 92.5) of respondents were classified as "ARVs detectable, self-reported on ART, or both ARVs detectable and self-reported on ART." Among those aware of their HIV positive status and on ARVs, 87.5% (95% CI 85.4, 89.5) of respondents were classified as having their "Viral load suppressed (<1000 copies/ml)" **(Table 2)**.

Bivariate Analysis

Among the 6,528 respondents that both randomly received the HIV/AIDS-knowledge and attitudes interview module, most stated that they would buy fresh vegetables from a shop keeper or vendor if they knew the person had HIV (87.1%). This was positively associated with being aware of their HIV status (by self-report or presence of ARVs) (OR = 2.2; 95% CI 1.3, 3.7). Additionally, being classified as aware of their HIV status or being considered aware because of the presence of ARVs in their biomarker test was positively associated with agreeing that children living with HIV should be able to attend school with children who do not have HIV (87.2%; OR = 2.0; 95% CI 1.1, 3.3), that people hesitate to take an HIV test because they are afraid of how other people will react if the test result is positive for HIV (77.3%; OR = 1.5; 95% CI 1.0, 2.3), and that people talk badly about people who are living with HIV or who are thought to be living with HIV (60.7%; OR = 1.4; 95% CI 1.0, 2.0). However, agreeing with the statement "I would be ashamed if someone in my

family had HIV," was negatively associated with being aware of one's HIV status (OR = 0.5; 95% CI 0.3, 0.9) and with being virally suppressed (OR = 0.5; 95% CI 0.3, 0.8) **(Table 3)**.

Adjusted Analysis

When controlling for cumulative social stigma score, gender, and wealth quintile, there is a positive association between an increase in age category and being classified as aware of their HIV status or being considered aware because of the presence of ARVs in their biomarker test (aOR = 1.3; 95% CI 1.2, 1.4). An increase in one's age category is also positively associated with being on treatment (aOR = 1.2; 95% CI 1.1, 1.3) and being virally suppressed (aOR = 1.2; 95% CI 1.1, 1.3), when controlling for cumulative social stigma score, gender, and wealth quintile. Additionally, there was a positive association between being of male gender and awareness of HIV-positive status when controlling for cumulative socials stigma score, age, and wealth quintile (aOR = 1.8; 95% 1.3, 2.5). Despite concepts grounded in literature, the combined social stigma score was not significantly associated with awareness status, treatment, or viral suppression when controlling for age, gender, and wealth quintile **(Table 4)**.

Discussion

This study highlights how HIV/AIDS-related social stigma is associated with HIV testing, treatment, and care among adults aged 15-59 years in Lesotho. In contrast to previous reports, we did not find any evidence of HIV/AIDS-related social stigma, cumulatively, being associated with HIV testing, treatment, and care despite controlling for confounders grounded in the literature [8, 32-38]. However, when looking at the HIV/AIDS-related social stigma questions individually, most showed a statistically significant association with awareness of HIV status. Being aware of one's HIV status has several downstream effects including whether an individual gets on treatment, which then impacts whether they become virally suppressed. Given this, it is important to understand the association between HIV/AIDS-related social stigma and HIV testing to help high-risk countries like Lesotho to reach and surpass their UNAIDS 2030 95-95-95 target.

As of 2016-2017, among PLWH, 81.1% (95% CI 80.0, 83.3) of the respondents were classified as being aware of their HIV status, of whom 90.8% (95% CI 89.1, 92.5) were classified as being on treatment, of which 87.5% (95% CI 85.4, 89.5) were classified as being virally suppressed. The UNAIDS reported that as of 2020, Lesotho has 93% of its population living with HIV/AIDS aware if their status, of whom 71% of those diagnosed were on ART, of whom 95% were virally suppressed (i.e., progress towards the 90/90/90 goals by 2017 was 93/71/95) [6]. Based on these results, it seems that awareness of HIV status and the proportion of those on treatment with viral suppression have increased, while the proportion of those living with HIV and on treatment has declined from 2016-2017 to 2020. If this trajectory continues, Lesotho will not be able to reach nor surpass their updated UNAIDS 95-95-95 target by 2030. As such, additional HIV/AIDS

prevention programs are needed to address barriers to treatment. However, we first need to understand what these barriers are.

According to our results, most HIV/AIDS-related social stigma questions were associated with one's awareness of HIV status. Respondents who reported willingness to buy produce from a shopkeeper living with HIV had over two times the odds of being aware of their HIV status compared to respondents who were unwilling. People who were supportive of having children living with HIV attend school with children not living with HIV were twice as likely to be aware of their HIV status when compared to respondents who were not supportive Additionally, those that agreed with the statement "I would be ashamed if someone in my family had HIV" were half as likely to be aware of their HIV status compared to individuals who disagreed. Despite it representing the presence of stigma, similar to a study done by Srithanaviboonchai et al., in Thailand, the majority of our study respondents agreed with the social stigma questions "Do you think people hesitate to take an HIV test because they are afraid of how other people will react if the test result is positive for HIV," and "Do people talk badly about people who are living with HIV or who are thought to be living with HIV," (77.3% and 60.7%) [71]. This is worrisome since HIV testing is the entry point for the needed interventions for both HIV-negative and HIV-positive testers [71]. However, contrary to the Thailand study, agreeing with these social stigma questions increased the odds of being classified as aware of their HIV status by 1.5 and 1.4 respectively in our study [71]. This inverse outcome might be because the first three questions relate to perceived social stigma while these final questions relate to enacted social stigma as they asked about other people as opposed to their personal thoughts/feelings. However, further research is needed to elucidate this finding. The overall finding is consistent with the Lesotho Network of People Living

with HIV/AIDS (LENEPWHA) report [72]. This report noticed that 90.6% of participants got tested for HIV by their own choice and did so because they felt sick, thought they were at risk for HIV, or just wanted to know their status. They also confirmed that only 1.1% of participants reported getting tested because of community programs suggesting that testing, in large, is being demand-driven or pushed by other PLWH in the form of social communication among communities/families in Lesotho. As such, HIV/AIDS-related social stigma, whether positive or negative, is associated with whether someone chooses to get tested. This is confirmed by the fact that 22% of the community said that they hesitated to get tested for fear of stigma by others.

When looking at whether HIV/AIDS-related social stigma is associated with whether someone is on ART or virally suppressed (<1000 copies/mL), our results showed only one of the six HIV/AIDS-related social stigma questions supported this finding. This finding is also consistent with the findings in the LENEPWHA report [72]. When evaluating HIV treatment and viral suppression, the LENEPHWA report identified self-stigma, compared to social stigma, as the major barrier to HIV treatment and care. In terms of treatment, despite over 95% of participants receiving treatment, 32% still report that fears kept them from getting treatment, namely not being ready to deal with their HIV diagnosis. In terms of staying on treatment, and becoming virally suppressed, the main stigma barrier reported had to do with not feeling the treatment was needed [72]. Although the major factor portrayed as a barrier to treatment and care was self-stigma, it is important to understand the association between HIV/AIDS-related social stigma and HIV testing and care.

Our study also showed that the cumulative social stigma score was not significantly associated with HIV awareness status, treatment, or viral suppression when controlling for age, gender, and wealth quintile. This contrasts with other studies that determined age [19-20], gender [7,16], education [21-22], urban/rural classification [18], wealth index [10-14], marital status [24-25], and religion [23] were additional barriers associated with the uptake of HIV testing, treatment, and care. Education, rural/urban classification, district, and wealth index were examined using the wealth quintile variable as crosstabulations of these variables examined the same characteristics. Marital status and religion were dropped due to evidence of it not impacting the overall adjusted odds ratio of the cumulative social stigma score on HIV testing, treatment, and care. However, when controlling for cumulative social stigma score, gender, and wealth quintile, there was a statistically significant association between age and testing, treatment, and care. As an individual's age category increases, the odds of them being aware of their HIV status, the odds of them being on treatment, and the odds of them being virally suppressed are 1.3, 1.2, and 1.2, respectively. This is consistent with findings from Thin et al., which showed younger age was significantly associated with being less likely to be aware of their HIV status, being on treatment, and being virally suppressed [73]. Additionally, the odds of being classified as aware of their HIV status for males was 1.8 times the odds for females, controlling for age, cumulative social stigma score, and wealth quintile. This is consistent with the 2020 UNAIDS report that stated women and girls in Eastern and Southern Africa have additional barriers, like unequal gender norms, that contribute to the higher HIV risk and lower testing, treatment, and care [7].

Limitations

Several limitations exist in this study. As with all household-based surveys, some selected participants will be unavailable or will choose not to participate. Although survey weights adjust for this, nonparticipation remains a potential source of selection bias. Additionally, those that do not complete the survey are thus not eligible to randomly receive the HIV/AIDS-knowledge and attitudes interview module producing additional selection bias. Those that do complete the survey are at the discretion of both recall and social desirability bias due to the self-reported nature of the survey that is administered verbally by interviewers. Although interviewers were trained in techniques to put participants at ease and to support them in accurate reporting, there still exists some potential for misclassification due to social desirability bias. Finally, because the PHIA dataset is based on a cross-sectional population-based survey, the data are not designed to identify trends or changes over time. As such, we are unable to determine whether a participant's current HIV/AIDS status or indicators are a result or a cause of their HIV/AIDS-related social stigma. Additionally, the construction of the questions regarding HIV/AIDS-related social stigma inhibits the inferences that can be made both cumulatively and individually.

Implications and Recommendations

With the second highest HIV/AIDS prevalence in the world among adults aged 15 to 59 years, Lesotho is in need of interventions from the individual- to the policy-level to decrease the rate of HIV/AIDS transmission [4-6]. Recently there have been advances in testing, treatment, and care, but there still exist barriers that aggravate this work [3]. HIV/AIDS-related social stigma has been found to prevent PLWH from acquiring information and making use of the services that are needed to protect their health and the health of the country [61]. To our knowledge, this is the first

quantitative report addressing the level of HIV/AIDS-related social stigma from the perspective of those experiencing HIV/AIDS-related stigma in Lesotho using a nationally representative survey. Overall, our study added to the understanding of how HIV/AIDS-related social stigma is associated with whether someone is classified as being aware of their HIV status, whether someone is classified as being on treatment, and whether someone is classified as being virally suppressed. More specifically, this study helped to show that HIV/AIDS-related social stigma is associated with HIV testing, in turn affecting their treatment and care-seeking behaviors.

Future studies should focus on a prospective cohort to assess the temporal relationships between different aspects of stigma and allow for a better understanding of development of stigma over the life course to better describe the causal relationship between stigma and HIV/AIDS-related outcomes. The use of a stigma scale that clearly distinguishes HIV/AIDS-related social and self-stigma questions would be beneficial to understanding the association between HIV/AIDS-related social and self-stigma among the Lesotho population and HIV testing, treatment, and care. Additionally, introducing stigma prevention efforts, such as educating communities on the importance of eradicating HIV/AIDS-related stigma could be studied to see its impact on improving access to HIV/AIDS testing, and in turn treatment and care, in Lesotho. Examining HIV/AIDS testing, treatment, and care after successful implementation of community education would be a good measure of reducing HIV/AIDS-related social stigma, in turn, helping Lesotho reach and surpass their 95-95-95 target by 2030.

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Appendix

Table 1. Characteristics of adults among all study respondents and those analyzed from the randomly assigned HIV/AIDS-Knowledge & Attitudes Interview Module in the Population-Based HIV Impact Assessment (PHIA) Lesotho Study, 2016-2017

Characteristic	All Study Respondents (N = 13,072)		Randomly Assigned HIV/AIDS – Knowledge & Attitudes Interview Module (N = 6,528)	
	n	%	n	%
Age (years)				
15-19	2,280	17.3	1,154	17.7
20-24	2,205	16.9	1,127	17.3
25-29	2,012	15.4	1,005	15.4
30-34	1,681	12.9	828	12.7
35-39	1,354	10.4	688	10.6
40-44	1,069	8.2	520	8.0
45-49	828	6.6	378	5.8
50-54	783	6.0	395	6.1
55-59	827	6.3	415	6.4
Gender				
Male	5,433	41.7	2,692	41.4
Female	7,606	58.3	3,818	58.7
District				
Maseru	3,382	36.0	1,680	25.8
Mafeteng	1,275	9.8	624	9.6
Mohale’s Hoek	968	7.4	476	7.3
Leribe	2,157	16.5	1,077	16.5
Berea	1,688	13.0	850	13.1
Quthing	697	5.4	361	5.6
Butha-Buthe	837	6.4	432	6.6
Mokhotlong	732	5.6	356	5.5
Qacha’s Nek	508	3.9	255	3.9
Thaba-Tseka	795	6.1	399	6.1
Urban/Rural Classification				
Urban	5,144	39.5	2,577	39.6
Peri-Urban	894	6.9	426	6.5
Rural	7,001	53.7	3,507	53.9
Wealth Quintile				
Lowest	2,524	19.4	1,274	19.6
Second	2,571	19.7	1,267	19.5
Middle	2,580	19.8	1,296	19.9
Fourth	2,634	20.2	1,346	20.7
Highest	2,730	21.0	1,327	20.4
Educational Attainment				
No Education	626	4.8	313	4.8
Primary	5,320	40.8	2,650	40.7

Secondary	5,811	44.9	2,916	44.8
College/University	1,118	8.6	562	8.6
Graduate/Post-Graduate	155	1.2	66	1.0
Missing	9	0.1	3	0.1
Religion				
Roman Catholic	5,181	39.7	2,563	39.4
Lesotho Evangelical	2,275	17.5	1,112	17.1
Anglican	908	7.0	441	6.8
Pentacostal	1,131	8.7	571	8.8
Other Christian	2,403	18.4	1,232	18.9
Other Religion	939	7.2	478	7.3
Don't Know	162	1.2	97	1.5
Missing	40	0.3	17	0.3
Marital Status				
Married	6,102	74.4	3,054	74.7
Living Together	159	1.9	81	2.0
Widowed	1,074	13.1	535	13.1
Divorced	166	2.0	75	1.8
Separated	676	8.3	328	8.0
Don't Know	18	0.2	11	0.3
Refused	3	0.0	2	0.1
Self-Reported HIV Status				
HIV Positive	2,672	20.5	1,302	20.0
HIV Negative	8,661	66.4	4,369	66.9
Never Tested	1,560	12.0	786	12.0
Don't Know/ Refused/ Unknown/ Indeterminate	142	1.1	71	1.1
Confirmed HIV Status				
HIV Positive	3,199	25.6	1,565	25.2
HIV Negative	8,483	74.5	4,235	74.8

Percentages may not sum to 100 due to rounding

Table 2. Awareness of HIV status, treatment, and viral load suppression among people living with HIV aged 15–59 years in the Population-Based HIV Impact Assessment (PHIA) Lesotho Study, 2016–2017

Outcome Variables	All Study Respondents		Randomly Assigned HIV/AIDS – Knowledge & Attitudes Interview Module	
	%	95% CI	%	95% CI
HIV Status Awareness				
Aware	81.0	79.5, 82.5	81.1	80.0, 83.3
Unaware	19.0	17.5, 20.5	18.9	16.7, 21.0
Treatment				
On ARV	91.8	90.5, 93.2	90.8	89.1, 92.5
Not on ARV	8.2	6.9, 9.5	9.2	7.5, 10.9
Viral Load Suppression				
Yes	87.7	86.1, 89.3	87.5	85.4, 89.5
No	12.3	10.7, 13.9	12.5	10.5, 14.6

Percentages may not sum to 100 due to rounding

Table 3. Bivariate associations with positive response for HIV/AIDS-related stigma questions, among those analyzed from the randomly assigned HIV/AIDS-Knowledge & Attitudes Interview Module in the Population-Based HIV Impact Assessment (PHIA) Lesotho Study, 2016-2017

HIV/AIDS – Knowledge & Attitudes Module:	Yes (N = 6,528)		Aware of HIV Status			On ART			Viral Load Suppressed		
	n	%	OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Would you buy fresh vegetables from a shop keeper or vendor if you knew the person had HIV?	5,685	87.1	2.2	1.3, 3.7	0.01	1.3	0.5, 3.5	0.65	1.3	0.6, 2.8	0.56
Do you think children living with HIV should be allowed to attend school with children who do not have HIV?	5,692	87.2	2.0	1.2, 3.3	0.02	0.5	0.2, 1.4	0.16	0.9	0.4, 2.0	0.87
Do you think people hesitate to take an HIV test because they are afraid of how other people will react if the test result is positive for HIV?	5,042	77.3	1.6	1.1, 2.3	0.03	1.0	0.5, 1.9	0.98	0.9	0.5, 1.5	0.69
Do people talk badly about people who are living with HIV or who are thought to be living with HIV?	3,962	60.7	1.4	1.0, 2.0	0.04	0.9	0.5, 1.5	0.72	0.9	0.5, 1.4	0.59
Do people living with HIV, or thought to be living with HIV, lose the respect of other people?	2,794	42.8	1.2	0.9, 1.6	0.23	0.7	0.4, 1.1	0.14	1.1	0.7, 1.6	0.76
Do you agree or disagree with the following statement: I would be ashamed if someone in my family had HIV	960	14.7	0.5	0.4, 0.9	0.01	3.1	0.9, 10.4	0.07	0.5	0.3, 0.8	0.01
Cumulative Social Stigma Score	-	-	1.1	0.9, 1.2	0.25	1.1	0.9, 1.3	0.19	0.9	0.8, 1.1	0.43

Percentages may not sum to 100 due to rounding

Table 4. Adjusted associations with Status Awareness, Treatment, and Viral Load Suppression, among those analyzed from the randomly assigned HIV/AIDS-Knowledge & Attitudes Interview Module in the Population-Based HIV Impact Assessment (PHIA) Lesotho Study, 2016-2017

Outcome Variable	Explanatory Variable	Adjusted Odds Ratio		
		aOR	95% CI	p-value
HIV Status Awareness				
	Cumulative Social Stigma Score*	1.1	0.9, 1.2	0.36
	Age**	1.3	1.2, 1.4	<0.01
	Gender***	1.8	1.3, 2.5	0.01
	Wealth Quintile****	0.9	0.8, 1.1	0.22
Treatment				
	Cumulative Social Stigma Score*	1.1	0.9, 1.3	0.22
	Age**	1.2	1.1, 1.3	0.01
	Gender***	1.3	0.8, 2.1	0.28
	Wealth Quintile****	0.9	0.8, 1.1	0.19
Viral Load Suppression				
	Cumulative Social Stigma Score*	0.9	0.8, 1.1	0.43
	Age**	1.2	1.1, 1.3	0.01
	Gender***	0.9	0.6, 1.4	0.73
	Wealth Quintile****	1.1	0.9, 1.2	0.38

*Modeled relationship adjusts for age, gender, and wealth quintile
**Modeled relationship adjusts for cumulative social stigma score, gender, and wealth quintile
***Modeled relationship adjusts for cumulative social stigma score, age, and wealth quintile
****Modeled relationship adjusts for cumulative social stigma score, age, and gender

Table 5. Urban/Rural Classification vs. District Crosstabulation, among those analyzed from the randomly assigned HIV/AIDS-Knowledge & Attitudes Interview Module in the Population-Based HIV Impact Assessment (PHIA) Lesotho Study, 2016-2017 (N = 6,528)

District Name	Urban/Rural Classification			
	Urban	Peri-Urban	Rural	**Total**
Maseru	1,071 16.4% 63.6% 41.5%	141 2.2% 8.4% 32.8%	473 7.3% 28.1% 13.5%	1,685 (25.8%)
Mafeteng	156 2.4% 24.9% 6.0%	45 0.7% 7.2% 10.5%	425 6.5% 67.9% 12.1%	626 (9.6%)
Mohale's Hoek	166 2.5% 34.9% 6.4%	0 0.0% 0.0% 0.0%	310 4.8% 65.1% 8.8%	476 (7.3%)
Leribe	390 6.0% 36.0% 15.1%	54 0.8% 5.0% 12.6%	639 9.8% 59.0% 18.2%	1,083 (16.6%)
Berea	348 5.3% 40.9% 13.5%	113 1.7% 13.3% 26.3%	390 6.0% 45.8% 11.1%	851 (13.0%)
Quthing	127 2.0% 35.2% 4.9%	29 0.4% 8.0% 6.7%	205 3.1% 56.8% 5.8%	361 (5.5%)
Butha-Buthe	138 2.1% 31.9% 5.3%	0 0.0% 0.0% 0.0%	294 4.5% 68.1% 8.4%	432 (6.6%)
Mokhotlong	66 1.0% 18.5% 2.6%	21 0.3% 5.9% 4.9%	269 4.5% 68.1% 8.4%	356 (5.5%)
Qacha's Nek	83 1.3% 32.1% 3.2%	0 0.0% 0.0% 0.0%	176 2.7% 68.0% 5.0%	259 (4.0%)
Thaba-Tseka	38 0.6% 9.5% 1.5%	27 0.4% 6.8% 6.3%	334 5.1% 83.7% 9.5%	399 (6.1%)
Total	2,583 (39.6%)	430 (6.6%)	3,515 (53.8%)	

Table 6. Wealth Quintile vs. Educational Attainment Crosstabulation, among those analyzed from the randomly assigned HIV/AIDS-Knowledge & Attitudes Interview Module in the Population-Based HIV Impact Assessment (PHIA) Lesotho Study, 2016-2017 (N = 6,510)

Educational Attainment	**Wealth Quintile**					
	Lowest	Second	Middle	Fourth	Highest	**Total**
No Education	144 2.2% 46.0% 11.3%	73 1.1% 23.3% 5.8%	54 0.8% 17.3% 4.2%	27 0.4% 8.6% 2.0%	15 0.2% 4.8% 1.1%	313 (4.8%)
Primary	840 12.9% 31.7% 65.9%	683 10.5% 25.8% 53.9%	519 7.8% 19.6% 40.1%	394 6.1% 14.9% 29.3%	214 3.3% 8.1% 16.1%	2,650 (40.7%)
Secondary	285 4.4% 9.8% 22.4%	489 7.5% 16.8% 38.6%	682 10.5% 23.4% 52.6%	787 12.1% 27.0% 58.5%	673 10.3% 23.1% 50.7%	2,916 (44.8%)
College/ University	4 0.1% 0.7% 0.3%	19 0.3% 3.4% 1.5%	39 0.6% 6.9% 3.0%	132 2.0% 23.5% 9.8%	368 5.7% 65.5% 27.7%	562 (8.6%)
Graduate/Post-Graduate	0 0.0% 0.0% 0.0%	3 0.1% 4.6% 0.2%	1 0.1% 1.5% 0.1%	6 0.1% 9.1% 0.5%	56 0.9% 84.9% 4.2%	66 (1.0%)
Missing	1 0.0% 33.3% 0.1%	0 0.0% 0.0% 0.0%	1 0.0% 33.3% 0.1%	0 0.0% 0.0% 0.0%	1 0.0% 33.3% 0.1%	3 (0.1%)
Total	1,274 (19.6%)	1,267 (19.5%)	1,296 (19.9%)	1,346 (20.7%)	1,327 (20.7%)	

Table 7. Wealth Quintile vs. District Crosstabulation, among those analyzed from the randomly assigned HIV/AIDS-Knowledge & Attitudes Interview Module in the Population-Based HIV Impact Assessment (PHIA) Lesotho Study, 2016-2017 (N = 6,510)

District Name	Wealth Quintile					
	Lowest	Second	Middle	Fourth	Highest	**Total**
Maseru	136 2.1% 8.1% 10.7%	184 2.8% 11.0% 14.5%	330 5.1% 19.6% 25.5%	444 6.8% 26.4% 33.0%	586 9.0% 34.9% 44.2%	1,680 (25.8%)
Mafeteng	74 1.1% 11.9% 5.8%	182 2.8% 29.2% 14.4%	155 2.4% 24.8% 12.0%	120 1.8% 19.2% 8.9%	93 1.4% 14.9% 44.2%	624 (9.6%)
Mohale's Hoek	136 2.1% 28.6% 10.7%	123 1.9% 25.8% 9.7%	70 1.1% 14.7% 5.4%	72 1.1% 15.1% 5.4%	75 1.2% 15.8% 5.7%	476 (7.3%)
Leribe	121 1.9% 11.2% 9.5%	217 3.3% 20.2% 17.1%	270 4.2% 25.1% 20.8%	294 4.5% 27.3% 21.8%	175 2.7% 16.3% 13.2%	1,077 (16.5%)
Berea	61 0.9% 1.2% 4.8%	154 2.4% 18.1% 12.2%	190 2.9% 22.4% 14.7%	186 2.9% 21.9% 13.8%	259 4.0% 30.5% 19.5%	850 (13.1%)
Quthing	99 1.5% 21.4% 7.8%	96 1.5% 26.6% 7.6%	90 1.4% 24.9% 6.9%	58 0.9% 16.1% 4.3%	18 0.3% 5.0% 1.4%	361 (5.6%)
Butha-Buthe	112 1.7% 25.9% 8.8%	110 1.7% 25.5% 8.7%	74 1.1% 17.1% 5.7%	69 1.1% 16.0% 5.1%	67 1.0% 15.5% 5.1%	432 (6.6%)
Mokhotlong	203 3.1% 57.0% 15.9%	55 0.8% 15.5% 4.3%	48 0.7% 13.5% 3.7%	38 0.6% 10.7% 2.8%	12 0.2% 3.4% 0.9%	356 (5.5%)
Qacha's Nek	98 1.5% 38.4% 7.7%	56 0.8% 22.0% 4.4%	32 0.5% 12.6% 2.5%	39 0.6% 15.3% 2.9%	30 0.5% 11.8% 2.3%	255 (3.9%)
Thaba-Tseka	234 3.6% 58.7% 18.4%	90 1.4% 22.6% 7.1%	37 0.6% 9.3% 2.9%	26 0.4% 6.5% 1.9%	12 0.2% 3.0% 0.9%	399 (6.1%)
Total	1,274 (19.6%)	1,267 (19.5%)	1,296 (19.9%)	1,346 (20.7%)	1,327 (20.4%)	

Table 8. Prevalence (Confirmed HIV Status) vs. Self-Reported HIV Status Crosstabulation, among those analyzed from the randomly assigned HIV/AIDS-Knowledge & Attitudes Interview Module in the Population-Based HIV Impact Assessment (PHIA) Lesotho Study, 2016-2017 (N = 6,528)

Self-Reported HIV Status	**Prevalence (Confirmed HIV Status)**			
	HIV Positive	HIV Negative	Missing	**Total**
HIV Positive	1,247 19.1% 95.8% 78.6%	11 0.2% 0.8% 0.2%	44 0.7% 3.4% 7.0%	1,302 (19.9%)
HIV Negative	248 3.8% 5.7% 15.6%	3,649 55.9% 83.5% 84.6%	472 7.2% 10.8% 74.8%	4,369 (66.9%)
Never Tested	51 0.8% 6.5% 3.2%	631 9.4% 80.3% 14.7%	104 1.6% 13.2% 16.5%	786 (12.0%)
Don't Know/ Refused/ Unknown/ Indeterminate	40 0.6% 56.3% 2.5%	20 0.3% 28.2% 0.5%	11 0.2% 15.5% 1.7%	71 (1.1%)
Total	1,586 (24.3%)	4,311 (66.0%)	631 (9.7%)	