HIV Prevalence and Associated Factors Among Men in South Africa 30 Years into the Epidemic: The Fifth Nationwide Cross-Sectional Survey

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Abstract

We investigated HIV prevalence and associated factors among men ≥ 15 years in South Africa using data from a 2017 nationwide cross-sectional survey. HIV prevalence was 10.5% among 6 646 participants. Prevalence increased from 4.1% in the younger men (15–24 years), 12.5% in young men (25–34 years) to 12.7% in older men (≥ 35 years). Odds of being infected with HIV were lower among younger men who had secondary level education and those who reported poor/fair self-rated health. Young and older men of other race groups had lower odds of HIV infection. Odds of infection were lower among young men who had moderate/high exposure to HIV communication programmes. Men not aware of their HIV status had higher odds of HIV infection, including older men who never married. Improved access to education, behavioral change programmes, and awareness of HIV status are necessary to reduce the risk of HIV infection among Black African men.

Keywords

- HIV prevalence
- Men
- Associated factors
- South Africa

Introduction

South Africa continues to be the global epicentre of the HIV epidemic with an overall HIV prevalence of 14%, which translates to an estimated 7.9 million people living with HIV in 2017 [1]. Globally, HIV disproportionately affects women with men constituting 44% of the total population of people living with HIV (PLHIV) [2]. Various factors contribute to women's vulnerability to HIV infection. These include biological, socio-economic factors and culturally defined gender roles [3]. It is therefore not surprising that HIV prevention theory, research, and implementation in sub-Saharan Africa have largely prioritized the needs of women in general, and in particular those of adolescent girls and young women (AGYW) who have the highest incidence rates [4, 5]. The gendered pattern of distribution of HIV in sub-Saharan Africa informs HIV programming.

Consequently, the health needs of men in sub-Saharan Africa have received less attention. Calls for greater engagement of men in universal HIV test-and-treat programmes [6], specifically in sub-Saharan Africa are not new [7,8,9]. Although there is a plethora of HIV-focused research and interventions on engaging men, few of these interventions target men specifically and effectively except for voluntary medical male circumcision (VMMC). Considerable gaps still exist in empirical knowledge about factors associated with HIV among men, particularly in South Africa.

Studies show that across the Southern African region men are less likely to be tested, and less likely to initiate antiretroviral therapy [10, 11]. Men also start treatment at later stages of disease progression, have worse adherence and higher loss-to-follow-up when on treatment, and are more likely to die from AIDS than their female counterparts [12,13,14,15]. Given men's higher AIDS-related morbidity and mortality in this context, HIV-positive men represent another vulnerable population [16]. This situation needs to be addressed urgently if we are to curb HIV transmission in sub-Saharan Africa. This entails effective engagement of adolescent boys, young and older men, which is critical for health equity and effective HIV epidemic control [17].

In sub-Saharan Africa risk factors for HIV infection among men varies widely even within countries [18]. A study conducted in Benin, Cameroon, Kenya, and Zambia found that the spread of HIV-1 infection was determined by a complex interplay of sexual behaviour, including rate of partner change, sexual mixing patterns between different sexual activity classes, and different age groups [19]. Studies conducted elsewhere in sub-Saharan Africa found positive associations between HIV infection and locality type especially in areas with high population density such as urban versus rural settings [6, 20]. Others found that higher educational attainment significantly reduced the risk of becoming infected with HIV in poor rural communities in South Africa [21,22,23]. Improved understanding of HIV infection and underlying factors among men will help inform how to tailor interventions to enhance HIV prevention and risk reduction efforts.

This study investigated HIV prevalence and associated factors among men aged 15 years and older using data from the 2017 South African National HIV Prevalence, Incidence, Behaviour and Communication Survey.

Methods

Data

The data used were obtained from the 2017 cross-sectional population-based household survey conducted using a multi-stage stratified random cluster sampling design [1]. The survey used the 2015 national population sampling frame of 84907 small area layers (SALs) developed by Statistics South Africa to draw a master sample of 1000 SALs [24]. The selection of SALs was stratified by province, locality type (urban areas, rural informal/tribal areas, rural/farms) and dominant race group in urban areas. A total of 15 visiting points (VPs) were randomly selected from each of 1000 SALs, targeting 15 000 VPs. The survey included household members of all ages who were eligible to participate in the survey.

Behavioural and demographic data were collected electronically using a household questionnaire, and age-appropriate questionnaires including one for persons aged 15 years and older. The interviews were administered using the Census and Survey Processing System (CSPro) software package on Mecer A105 computer tablets. The questionnaires were used to collect among others information on socio-demographic characteristics, sexual history and behaviour, HIV risk perception, knowledge and attitudes, including exposure to various HIV communication campaigns [1]. The current study used questionnaire data and HIV prevalence estimate of males 15 years and older. Informed consent and/or assent were sought before undertaking both the behavioural data and biological specimen collection.

To determine HIV serostatus dried blood spot (DBS) samples were collected using a finger prick and were tested for HIV antibodies using an algorithm with three different enzyme immunoassays (EIAs). All samples testing HIV positive during the first two EIAs (Roche Elecys HIV Ag/Ab assay, Roche Diagnostics, Mannheim, Germany and Genescreen Ultra HIV Ag/Ab assay, Bio-Rad Laboratories, California, USA) and were subjected to a nucleic acid amplification test (COBAS AmpliPrep/Cobas Taqman HIV-1 Qualitative Test, v2.0, Roche Molecular Systems, New Jersey, USA) for the final interpretation of test results [1].

Measures

The primary outcome measure was respondents' HIV serostatus, which was dichotomized into HIV positive = 1 and negative = 0. This excluded men who knew their HIV positive status. Socio-demographic variables included age categories in years (15–24, 25–49, and 50 years and older), sex (male and female), race (Black Africans and Other which include White, Coloured or mixed race, and Asian or of Indian origin collapsed into one group due to small numbers), marital status (married and never married), educational level completed (no education/primary, secondary, and tertiary), employment status (not employed and employed), and locality type (urban, rural informal/tribal areas, and rural formal/farms).

Sexual risky behavioural variables included the age at sexual debut (less than 15 years or more than 15 years), age-disparate sexual partnerships (partner within 5 years, partner 5 years younger, and partner 5 years older), number of sexual partners in the last 12 months (one partner, two or more sexual partners), condom use at last sexual intercourse (yes and no), consistent condom use during sexual contact (yes and no), medical male circumcision

(yes and no) and alcohol use risk score based on the questionnaire for alcohol use disorder identification test (AUDIT) (abstainers = 0; low-risk drinkers = 1–7; high-risk drinkers = 8–19; hazardous drinking = 20 +) [25].

Health related variables included exposure to 48 different types of HIV related social and behavioural change communication programmes in the past 12 months [22] classified as "none" if the person had not watched, heard, or participated in any of the mentioned programmes, 'low' if exposed to between 1 and 5 programmes, "moderate" if exposed to between 6 and 15 programmes, and "high" if exposed to 16 or more programmes. Correct knowledge of transmission and prevention and rejection of all myths about HIV (no and yes) was based on responses to the following questions: can AIDS be cured? Can a person reduce the risk of HIV by having fewer sexual partners? Can a healthy-looking person have HIV? Can a person get HIV by sharing food with someone who is infected? Can a person reduce the risk of getting HIV by using a condom every time he/she has sex? Self-perceived risk of HIV infection (no and yes) was measured based on responses to the following question: on a scale of 1 to 4 (with 1 being low and 4 being high), how would you rate yourself in terms of risk of becoming infected with HIV? We also measured self-reported awareness of HIV status (no and yes), and self-rated health status (fair/poor and excellent/good).

Statistical Analysis

The data were benchmarked against 2017 mid-year population estimates by age, race, sex, and province to ensure that the sample estimates were generalizable to the respective populations of South Africa as per the 2017 mid-year population estimates [22]. Descriptive statistics (frequencies and percentages) were used to summarize the study sample, and HIV serostatus by socio-demographic characteristics, behavioural, HIV and health related variables. The Pearson's Chi Square test was used for comparison of categorical variables. Three multivariate logistic regression models were fitted to determine factors associated with HIV infection among younger men aged 15–24 years, young men aged 25–34 years and older men aged 35 years and older. Adjusted odds ratios (AOR) with their 95% CI, and $p \leq 0.05$ were used to determine statistical significance. All analyses were done using STATA 15.0 (StataCorp, College Station, TX, USA). The "svy" command was used to introduce weights which take into account the complex design of the survey.

Ethical Approval

The survey protocol was approved by the HSRC's Research Ethics Committee (REC: 4/18/11/15) and the Associate Director for Science, Center for Global Health, Centers for Disease Control and Prevention (CDC), GA, USA. Informed consent was sought from all participants aged 18 years and older. However, informed consent was first sought from parents/guardians of participants aged 15–17 years and then assent obtained from the youth themselves.

Table 1. Socio-demographic, risky sexual and health related characteristics among men aged 15 years and older (N = 6646), South Africa 2017

Variables	N	%
Age categories in years		
15–24	2048	25.8
25–34	1431	28.3
35–44	997	19.4
45–54	854	12.03
55 +	1316	14.44
Race groups		
Black African	4421	77.9
Other	2225	22.1
Marital status		
Married	1969	30.9
Never married	3826	69.1
Educational level		
No education/primary	931	15.4
Secondary	3033	68.4
Tertiary	566	16.2
Employment status		
Unemployed	3587	57.4
Employed	2482	42.6
Locality type		
Urban	4176	69.9
Rural informal/tribal areas	1449	22.4

Rural/farm areas	1021	7.6
Sexual debut		
Less than 15 years	511	8.5
15 years and older	6102	91.5
Age-disparate sexual partnership		
Within 5 years	2146	61.4
Younger than 5 years	1172	35.4
Older than 5 years	123	3.2
Number of sexual partners in the last 12 months		
One partner	2902	82.4
Two and more partners	550	17.6
Condom use last sex		
No	2138	58.9
Yes	1304	41.1
Consistent condom use		
No	3338	97.3
Yes	70	2.7
AUDIT score		
Abstainers	3098	54
Low risk drinkers (1–7)	1527	27.5
High risk drinkers (8–19)	842	15.7
Hazardous drinkers (20 +)	132	2.9

Exposure to HIV communication programmes in the 12 months		
None	2641	38.3
Low	2547	35.7
Moderate	1351	23.9
High	107	2.1
HIV correct knowledge and myth rejection		
No	3931	64.2
Yes	2210	35.8
Self-perceived risk of HIV infection		
Low	5104	82.6
High	873	17.4
Awareness of HIV status		
No	2437	45.3
Yes	3584	54.7
Self-rated health		
Excellent/good	5077	83.8
Fair/poor	1066	16.2

Subtotals do not add up to the overall total (N) due to non-response and/or missing data, and Other includes White, Coloured or mixed race, and Asian or of Indian origin collapsed into one group due to small numbers *AUDIT* alcohol Use disorder identification test

Results

Characteristics of the Study Sample

Table 1 shows characteristics of the study sample. A total of 6646 individuals 15 years and older were included in this study. Weighted percentages suggest that, among South African men aged 15 and above, the majority of participants were 25–34, Black African, never married, had secondary level education, were unemployed, and from urban areas. A higher proportion reported sexual debut at age 15 years and older, had sexual partners within 5 years of their age, reported one sexual partner in the past 12 months, did not use condom at last sex, did not use condoms consistently, abstained from alcohol, were not exposed to HIV communication programmes in the past 12 months, had no correct knowledge and myth rejection about HIV, perceived themselves as being at low risk of HIV infection, were aware of their HIV status, and reported excellent/good self-rated health.

HIV Prevalence and Sample Characteristic

Of 6 646 male participants aged ≥ 15 years old that were tested for HIV antibodies, 10.5% (95% CI 3.57–7.12) were HIV positive. Figure 1 shows the HIV prevalence across various age ranges. The highest HIV prevalence occurred among men aged 35–44 years (17.6%). Among the selected age groups, HIV prevalence increased from 4.1% (95% CI 3.1–5.5) in the younger men aged 15–24 years to 12.5% (95% CI 10.1–15.3) in young men aged 25–34 years and 12.7% (94% CI 11.2–14.4) in older men aged 35 years and older.

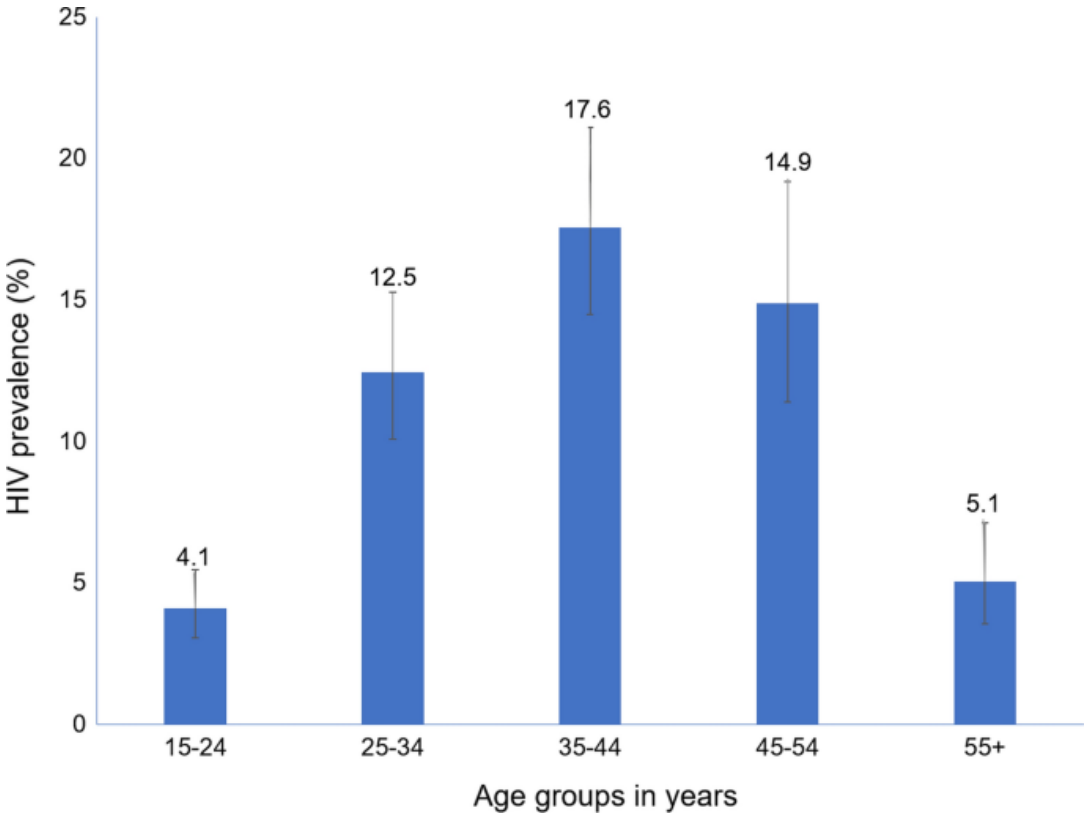

Fig. 1. HIV prevalence and sample characteristics

Table 2. HIV prevalence by socio-demographic, risky sexual and health related factors among men aged 15–24 years, 25–34 years, and 35 years and older, South Africa 2017

Variables	15–24 years					25–34 years					35 years and older				
	N	%	95% CI	Chi-square	p-value	N	%	95% CI	Chi-square	p-value	N	%	95% CI	Chi-square	p-value
Race groups															
Black African	1510	4.6	3.4–6.2	82.357	0.090	1058	14.2	11.4–17.5	329.581	< 0.001	2911	15.9	14.0–17.9	664.997	< 0.001
Other	538	1.5	0.4–5.7			373	3.7	1.8–7.4			1687	2.9	1.8–4.6		
Marital status															
Married	18	0		6.605	0.653	188	10.5	5.8–18.4	7.142	0.641	1951	9.4	7.5–11.9	138.836	0.002
Never married	1879	4.1	3.0–5.5			1139	12.2	9.8–15.0			1947	14.6	12.5–17.0		
Educational level															
No education/primary	97	7.4	3.1–16.7	157.179	0.289	146	9.5	5.6–15.5	121.119	0.123	834	15.7	12.3–19.9	169.253	0.003
Secondary	686	5.4	3.3–8.7			912	13.3	10.4–16.9			2347	13.4	11.3–15.9		
Tertiary	57	0				151	7.2	3.4–14.5			509	6.6	4.1–10.5		
Employment status															
Unemployed	1564	4.1	2.9–5.8	2.252	0.703	570	9.9	7.1–13.7	87.919	0.113	2023	10.9	9.1–13.1	41.586	0.043
Employed	322	3.6	1.9–6.7			773	13.9	10.6–18.0			2160	13.7	11.8–15.9		
Locality type															
Urban	1211	4	2.7–6.0	41.814	0.232	870	11.8	9.2–15.1	77.504	0.398	2965	11.4	9.6–13.4	147.115	0.001
Rural informal/tribal areas	588	3.6	2.2–5.9			269	12.2	8.0–18.1			861	14.3	11.3–17.9		
Rural/farm areas	249	7.7	4.4–13.1			292	18.7	8.9–35.0			772	20.4	16.3–25.3		
Sexual debut															
Less than 15 years	195	2.9	1.1–7.4	11.025	0.434	149	10.9	6.1–18.8	6.535	0.632	316	9.7	6.3–14.7	16.614	0.160
15 years and older	1843	4.3	3.2–5.7			1273	12.7	10.1–15.8			4259	13	11.4–14.8		

Age-disparate sexual partnership															
Within 5 years	741	3.3	1.9–5.5	33.815	0.566	592	11.3	8.2–15.3	12.296	0.883	1405	12.1	9.8–14.7	25.003	0.494
Younger than 5 years	49	5.3	1.6–15.9			320	12.4	7.9–18.8			1123	13.4	10.8–16.5		
Older than 5 years	35	6.2	1.3–25.4			36	14.5	4.7–37.2			88	18	8.5–34.1		
Number of sexual partners in the last 12 months															
One partner	614	3.9	2.3–6.5	31.255	0.360	757	12.5	9.5–16.2	42.593	0.303	2288	13.1	11.2–15.4	8.724	0.482
Two and more partners	215	2.4	0.9–6.3			192	9.1	5.3–15.3			335	11.3	7.5–16.6		
Condom use last sex															
No	281	4.6	2.1–9.6	48.557	0.292	529	9.3	6.3–13.6	179.886	0.065	1857	10.5	8.5–12.9	202.858	0.001
Yes	545	2.8	1.5–5.0			419	15	11.0–20.3			759	17.3	14.0–21.3		
Consistent condom use	826	3.4	2.1–5.5			948	12	9.5–15.1			2616	12.9	11.1–14.9		
No	788	3.2	1.9–5.3	5.830	0.719	917	11.8	9.2–15.0	32.623	0.295	2550	13	11.2–15.1	34.949	0.079
Yes	34	4.6	0.6–27.0			24	5.6	1.3–21.4			36	4	0.9–15.8		
AUDIT score															
Abstainers	1131	3.5	2.4–5.0	34.886	0.686	551	15.8	11.9–20.7	381.831	0.008	1967	14.3	12.1–16.8	120.503	0.019
Low risk drinkers (1–7)	377	5	2.7–9.1			346	6.2	3.5–10.7			1150	10.2	7.9–13.0		
High risk drinkers (8–19)	195	5	2.0–11.8			281	12.9	8.3–19.5			647	12.9	9.3–17.6		
Hazardous drinkers (20 +)	27	6.3	0.9–34.4			52	6	1.8–17.7			105	3.9	1.3–10.7		
Exposure to HIV communication programmes in the 12 months															
None	624	4.8	3.0–7.5	30.658	0.693	471	15.6	11.1–21.7	285.182	0.041	2017	13.2	10.8–16.0	84.877	0.064
Low	845	4.1	2.6–6.5			557	13.8	10.1–18.5			1702	14.1	11.8–16.7		
Moderate	550	3.7	2.1–6.3			368	7	4.4–11.0			801	9.2	6.9–12.2		
High	29	0				35	16.4	5.6–39.5			78	17.8	9.1–32.0		

HIV correct knowledge and myth rejection															
No	1200	4.3	3.0–6.1	6.277	0.572	774	11.5	8.8–15.0	7.205	0.655	2731	12.5	10.6–14.6	0.111	0.928
Yes	694	3.6	2.1–6.1			571	12.7	9.2–17.3			1516	12.3	10.0–15.1		
Self-perceived risk of HIV infection															
Low	1587	4.1	2.9–5.7	18.088	0.324	1032	12.4	9.7–15.6	13.161	0.495	3517	11.5	10.0–13.3	30.106	0.100
High	249	2.6	1.1–5.9			278	10.6	7.0–15.6			624	14.6	11.3–18.6		
Awareness of HIV status															
No	615	2.8	1.7–4.7	40.805	0.169	624	9.8	7.3–13.1	105.376	0.054	1822	11.3	9.5–13.5	20.380	0.171
Yes	1251	4.5	3.0–6.7			675	14.1	10.8–18.3			2333	13.3	11.3–15.6		
Self-rated health															
Excellent/good	1724	4.1	2.9–5.6	0.518	0.898	1185	12.2	9.8–15.1	9.491	0.562	3353	12.2	10.7–14.0	3.644	0.598
Fair/poor	169	3.8	1.1–11.8			159	10.3	5.9–17.4			897	13.3	9.9–17.5		

Subtotals do not add up to the overall total (N) due to non-response and/or missing data, *AUDIT* alcohol use disorder identification test

Table 2 presents HIV prevalence by sample characteristics. In the age group 15–24 years, there was no statistically significant difference in in the level of HIV prevalence across the different characteristics. In the age group 25–34 years, HIV prevalence was significantly higher among Black African men, high-risk drinkers, and those with low exposure to HIV communication programmes in the past 12 months. In the age group 35 years and older, HIV prevalence was significantly higher among Black African men, those never married, those with no education, the employed, those from rural/farm areas, those who reported condom use at last sex, and high-risk drinkers.

Multivariate Factors Associated with HIV Prevalence

Figure 2 shows results of adjusted multivariable regression models for factors associated with HIV prevalence among men by selected age groups. The odds of being infected with HIV were lower among younger men (15–24 years) who had secondary level education [AOR = 0.34 (95% CI 0.12–1.95), p = 0.040] and those who reported poor/fair self-rated health [AOR = 0.20 (95% CI 0.07–0.57), p = 0.003]. Younger men who were not aware of their HIV status had higher odds of being infected with HIV [AOR = 2.05 (95% CI 1.03–4.07), p = 0.040]. The odds of being infected with HIV were lower among young men (25–34 years) of other race groups than Black African [AOR = 0.30 (95% CI 0.15–0.58), p < 0.001], those with moderate [AOR = 0.50 (95% CI: 0.30–0.86), p = 0.012] and high exposure [AOR = 0.12 (95% CI 0.05–0.30), p < 0.001] to HIV communication programmes. Young men who were not aware of their HIV status had higher odds of being infected with HIV [AOR = 1.96 (95% CI 1.38–2.77), p < 0.001]. The odds of being infected with HIV were lower among older men (35 years and older) of other race groups than Black African [AOR = 0.10 (95% CI 0.05–0.21), p < 0.001]. In this group the odds of being infected with HIV were higher among men who were never married [AOR = 1.59 (95% CI 1.08–2.35), p = 0.018], and those who were not aware of their HIV status [AOR = 1.50 (95% CI 1.10–2.06), p = 0.011].

Discussion

The results of this nationally representative study showed that overall, 10.5% of youth and men aged 15 years and older were HIV positive. HIV prevalence increased sharply from 4.1% in younger men aged 15–24 years to 12.5% in young men aged 25–34 years and 12.7% (94% CI 11.2–14.4) in older men aged 35 years and older. HIV prevalence varied by socio-demographic, behavioural and health related factors, and consistently significant associations reflected in the final models.

The results of the multivariate models showed that young men who had secondary level education were less likely to be infected with HIV. This corroborates results from other studies in South Africa and elsewhere in sub-Saharan Africa [21,22,23, 26]. These results suggest that higher educational attainment is protective. Studies elsewhere in Africa showed that there was a positive relation between adequate HIV knowledge and education, and that males with higher levels of education were more likely to use condoms and to keep to fewer sexual partners [27, 28]. Education should be promoted not only as an empowerment tool but also as a necessary pathway to assist in the assimilation of HIV related knowledge and information on risk reducing behaviours.

The findings showed that younger men who reported poor/fair self-rated health were less likely to be infected with HIV. Another study in a high prevalence population where the HIV-related knowledge was relatively high but where only a small proportion of infected persons had been tested for HIV showed that there was no link between HIV and self-rated health especially among younger males aged 15–24 years due to low awareness of HIV status [29]. These observations suggest that this measure of people's subjective health may not be a valuable "diagnostic" tool in HIV-related care and support programmes in high prevalence populations. Therefore, more research is needed to establish the relationship between HIV and self-rated health.

Consistent with other studies, the findings showed that young men and older men of other race groups were less likely to be infected with HIV compared to Black Africans. These findings reflect the state of the South African HIV epidemic, which is concentrated mainly among Black Africans. The reasons are mainly structural in nature due to various colonial and apartheid-era policies that left the majority of the Black population vulnerable [30]. These include among others the lack of quality education, and widespread poverty, unemployment, and the migrant labour system [30]. These social conditions contributed to increased vulnerability and risk of HIV acquisition. Consequently, in addition to multisectoral combination interventions there is a need to address a range of social, economic, and health related issues that put Black African men at risk of HIV.

The findings also showed that young men who had moderate and high exposure to HIV communication programmes were less likely to be infected with HIV. Social and behavioural change communication programmes play an important role in increasing people's knowledge and skills; influencing their beliefs and attitudes; challenging existing and prevailing norms; deepening perception of risk for HIV infection [22]. Extra work needs to be done to ensure that HIV communication campaigns are reaching more South Africans, especially young men in order to strengthen the countries response to the HIV epidemic.

In addition, the findings showed that older men who never married were more likely to be infected with HIV. Although evidence of the relationship between marriage and HIV has been mixed, some studies have shown that marriage is protective of HIV infection [23, 31,32,33]. One major advantage provided by marriage is a stable sexual relationship [34]. Marriage is also a form of social control, which in effect works to limit the number of sexual partners and other risky sexual behaviours [34]. These observations suggest a need to promote marriage and marital stability among currently married couples in order to reduce the risk of HIV transmission. However, both pre-marital couples and married persons should be encouraged to test for HIV and know their HIV status so that they can take appropriate precautions to prevent and reduce HIV transmission risk [23, 31,32,33]. These findings also suggest a need for behaviour change interventions targeting unprotected sex and risky sexual behaviours in order to reduce the risk of HIV infection among unmarried men.

Furthermore, men in all the three age groups who were not aware of their HIV status were more likely to be infected with HIV. Evidence shows that HIV positive men who were aware of their status were less likely to engage in risky sexual behaviour than the HIV positive men who were unaware of their status [35, 36]. In these studies, HIV diagnosis and counselling increased protective behaviours among HIV positive males who were aware of their HIV

status compared to those who were unaware of their status. In South Africa, while knowledge of HIV status is on the rise most HIV-infected men remain unaware of their serological status [22]. These observations highlight the need for comprehensive interventions that scale-up HIV counselling and testing to help men become aware of their HIV status in order to reduce the risk of HIV transmission to themselves if not infected, and to others if infected.

This study has some limitations that need to be acknowledged. These include the cross-sectional nature of the study which means that it cannot infer any causal relationship and is limited to assess correlates of HIV infection. The data are self-reported and subject to both recall and social desirability biases, which can lead to underreporting or overreporting. Furthermore, the lack of temporality obfuscates the interpretation of associations, as some behaviours may likely change after learning one's HIV status. Missingness, due to both unit and item non-response results in the reduction in sample size and statistical power to detect the deference or associations. Nevertheless, in this study sampling weights which account for the complex survey design were adjusted for questionnaire and HIV-testing non-response. Notwithstanding these limitations, the study is based on nationally representative sample and can be generalized to the youth and men 15 years and older in South Africa.

Conclusion

This study highlights the need to improve access to education in order to mitigate the impact of HIV through relevant information and life-long skills especially among younger men. There is a need to promote social and behavioural change communication programmes targeted at them in order to increase their knowledge and change their beliefs, attitudes, and practices towards reducing HIV transmission. There is also a need for tailored behaviour change interventions targeting unmarried older men. It is also essential to implement programmes that scale-up HIV testing for men to become aware of their status in order to reduce the risk of HIV transmission to themselves and others. The findings reiterate the need to address structural imperatives that expose Black African males to risk of HIV as part of a comprehensive response to the epidemic in the country.

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