Prevalence and determinants of HIV testing among young people in South Africa: Evidence from the 2016 Demographic and Health Survey

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Abstract

Background: South Africa has the largest number of people living with HIV (PLWHIV) worldwide, with a high rate of infections among young people. This study aimed to assess the predictors of HIV testing among the youth in South Africa.
Methods: The 2016 South Africa Demographic and Health Survey was used in this study. We used bivariate analysis, with a chi-square test, and multivariate logistic regression analysis.
Results: Age group, sex, population group, marital status, level of education, age at first sex, multiple sexual partners, household wealth status, place of residence and province were associated with HIV testing among youth. Youth from average-wealth households were 1.45 more likely to test for HIV compared to those from poor households. Those from rural areas were less likely to test for HIV compared to those from urban areas.
Conclusion: HIV education in schools, starting from the late-primary level, could enhance HIV testing.

Introduction

In 2021, 38.4 million people were living with the human immunodeficiency virus (HIV), with 36.7 million being adults aged 15 years or older and only 1.7 million being children aged 0-14 years (Samandarovna & Toshturdievich, 2023). It is estimated that about 5.9 million people do not know that they are living with HIV, due to not testing (Challacombe, 2020). In 2013, 2.1 million people acquired HIV for the first time, and approximately 35 million people were infected with the virus, according to the United Nations Joint Programme on HIV/AIDS (Endalamaw Alamneh et al., 2023; Granich et al., 2015). Particularly, there has been a global decline in the prevalence of young people with HIV infection. Since the first incidence of HIV was identified more than 30 years ago, there is evidence that widespread awareness of the viral infection is growing (Degano, 2019; Giunta et al., 2013). Despite this, HIV continues to have a devastating impact, especially on young people, who account for the majority of PLWHIV globally and 50% of all new HIV infections (Pandey & Galvani, 2019). There are 1.2 billion adolescents (10 – 19 years old) in the world, and roughly 2.2 million of them are HIV-positive (World Health Organization, 2021); many of them are not aware of their HIV status. The teenage years and the beginning of adulthood are a time of change, development, adventure, and opportunity; and young people have a surge in sex-related interest throughout this stage of life, which increases their risk of contracting STIs like HIV (Chávez et al., 2014; Temple-Smith et al., 2015).

Moreover, South Africa is among the countries with a high number of PLWHIV worldwide (Zuma et al., 2022), with a high rate of infections among young people. Over the past years, there has been an increase in the number of PLWHIV in South Africa (Ramjee & Daniels, 2013), from an estimated 3.8 million in 2002 to 8.2 million in 2021 (Statistics South Africa, 2021). According to Statistics South Africa (2021) the overall HIV prevalence rate is estimated to be at 13.7%. Those between the ages of 15-49 years shifted from a prevalence of 13.18% in 2002 to 19.50% in 2021 (Statistics South Africa, 2021). HIV remains a significant health issue in South Africa, particularly among young people. According to UNAIDS, in 2020, 200,000 new HIV infections were reported in South Africa, with young people accounting for 42% of these new infections. HIV testing is essential in preventing the transmission of HIV (Yang et al., 2023).

The national statistics on the coverage of prior HIV testing show that there are differentials in HIV testing between men and women. About 93% of women and 94% of men are aware of where they can get an HIV test (National Department of Health et al., 2019). However only 59% of women and 45% of men (aged 15 – 49) were tested for HIV and obtained the results of their last test (National Department of Health et al., 2019). Furthermore, the prevalence of young people aged 15-24 who ever tested for HIV and received results is higher among women (66%) than men (56.2%) (National Department of Health et al., 2019). There is a dearth of studies focusing on the predictors of HIV testing uptake among the youth in South Africa, particularly among those aged 15 – 34 years. There is a need for population research that measures the association between socio-demographic factors and HIV testing among youth in South Africa. The main objective of the study was to assess the prevalence and determinants of HIV testing among young people in South Africa.

Methods

Data source

We used secondary data from the 2016 South Africa Demographic and Health Survey (SADHS). Men and women who were between the ages of 15 and 34 at the time of the survey, and answered questions on HIV testing were included in this study.

Variables

We used HIV testing as our outcome variable in the study. This variable is based on self-reported previous HIV testing status among the youth. Respondents were asked if they ever tested for HIV. The possible responses were 'Yes' and 'No'. As such, the variable for this study is coded as 0=No and 1=Yes; yes being those who tested for HIV. We included ten independent variables. The independent variables selected for this study were age, sex, population group, marital status, age at first sex, education, multiple sexual partners, wealth index, place of residence, and province.

Statistical analysis

We used the Statistical Package for the Social Sciences (SPSS) version 28 to analyse the data (IBM Corp, 2021). Three types of analyses were used: univariate, bivariate, and multivariate analyses. This study used univariate analysis to describe the study sample. Bivariate analysis, with a chi-square test, was used to measure the association between the independent variables and the outcome variable. The binary logistic regression analysis was conducted to measure the relationship between the selected factors and the outcome variable.

Results

Determinants of HIV testing among young people

Table 1 presents the logistic regression findings for the relationship between HIV testing among the youth and selected background factors. The findings showed that age, sex, population group, marital status, level of education, age at first sex, household wealth status, and province were significant predictors of HIV testing among the youth in South Africa. There were generally higher odds of HIV testing among older youths compared to younger youths. The findings showed that youth aged 25-29 were 3.67 [95% CI: 2.77-4.85] times more likely to test for HIV compared to those aged 15-19. In terms of sex, the findings showed that women were 2.16 [95% CI: 1.81-2.59] times more likely to test for HIV compared to men. Regarding population group, the findings showed that those who were from the 'other' population group were 0.22 [95% CI: 0.14-0.34] times less likely to test for HIV compared to the black population group. Those who were in union were 2.20 [95% CI: 1.16-2.94] times more likely to test

for HIV compared to those who never married. Moreover, the findings showed that HIV testing increased with the level of education among the youth in South Africa. Youth with secondary education were 0.07 [95% CI: 0.51-0.96] times less likely to test for HIV compared to those with higher education. In terms of age at first sex, those who never had sex were 0.20 [95% CI: 0.15-0.28] times less likely to test for HIV compared to those whose age at first sex was less than 15.

Furthermore, in terms of household wealth status, youth from average-wealth households were 1.45 [95% CI: 1.18-1.77] times more likely to test for HIV compared to those from poor households. Likewise, those from rich households were 1.36 [95% CI: 1.03-1.80] times more likely to test for HIV testing compared to those from poor households. Additionally, youth from Gauteng were 0.49 [95% CI: 0.31-0.77] times less likely to test for HIV compared to those from the Western Cape. Likewise, youth from Limpopo were 0.64 [95% CI: 0.41-0.98] times less likely to test for HIV compared to those from the Western Cape.

References

Challacombe, S. J. (2020). Global inequalities in HIV infection. *Oral diseases*, *26*, 16-21.

Chávez, N. R., Shearer, L. S., & Rosenthal, S. L. (2014). Use of digital media technology for primary prevention of STIs/HIV in youth. *Journal of Pediatric and Adolescent Gynecology*, *27*(5), 244-257.

Degano, B. (2019). AIDS. Pediatr Pathol. 1988; 8: 417–421. Degano B, Guillaume M, Savale L, Montani D, et al. HIV-associated pul-monary arterial hypertension: survival and prognostic factors in the modern therapeutic era. AIDS. 2010; 24: 67–75. *Fundamentals of HIV Medicine 2019: CME Edition*, *8*, 401.

Endalamaw Alamneh, D., Shiferaw, M. B., Getachew Demissie, M., Emiru, M. A., Zemene Kassie, T., Endaylalu Lakew, K., & Tadege, T. Z. (2023). Virological outcomes among pregnant women receiving antiretroviral treatment in the Amhara Region, North West Ethiopia. *HIV/AIDS-Research and Palliative Care*, 209-216.

Giunta, B., Hervey, W., Klippel, C., Obregon, D., Robben, D., Hartney, K., di Ciccone, B. L., & Fernandez, F. (2013). Psychiatric complications of HIV infection: an overview. *Psychiatric Annals*, *43*(5), 199-203.

Granich, R., Gupta, S., Hersh, B., Williams, B., Montaner, J., Young, B., & Zuniga, J. M. (2015). Trends in AIDS deaths, new infections and ART coverage in the top 30 countries with the highest AIDS mortality burden; 1990–2013. *PloS one*, *10*(7), e0131353.

IBM Corp. (2021). *IBM SPSS Statistics for Windows, Version 28.0*. In IBM Corp.

National Department of Health et al. (2019). Coverage Rate for HIV Testing. https://dhsprogram.com/publications/publication-fr337-dhs-final-reports.cfm

Pandey, A., & Galvani, A. P. (2019). The global burden of HIV and prospects for control. *The Lancet HIV*, *6*(12), e809-e811.

Ramjee, G., & Daniels, B. (2013). Women and HIV in sub-Saharan Africa. *AIDS research and therapy*, *10*(1), 1-9.

Samandarovna, Q. F., & Toshturdievich, B. B. (2023). Epidemiological Trend and Laboratory Diagnostics of Acquired Immunodeficiency Syndrome in the Republic of Uzbekistan. *Journal Healthcare Treatment Development (JHTD) ISSN: 2799-1148*, *3*(03), 27-34.

Statistics South Africa. (2021). STATISTICAL RELEASE https://www.statssa.gov.za/publications/P0302/P03022021.pdf

Temple-Smith, M., Moore, S., & Rosenthal, D. (2015). *Sexuality in Adolescence: The digital generation*. Routledge.

World Health Organization. (2021). Guidelines: updated recommendations on HIV prevention, infant diagnosis, antiretroviral initiation and monitoring.

Yang, D., Allen Iv, J., Mahumane, A., Riddell Iv, J., & Yu, H. (2023). Knowledge, stigma, and HIV testing: An analysis of a widespread HIV/AIDS program. *Journal of Development Economics*, *160*, 102958.

Zuma, K., Simbayi, L., Zungu, N., Moyo, S., Marinda, E., Jooste, S., North, A., Nadol, P., Aynalem, G., Igumbor, E., Dietrich, C., Sigida, S., Chibi, B., Makola, L., Kondlo, L., Porter, S., Ramlagan, S., & Contributors, o. b. o. t. S. V. S. G. (2022). The HIV Epidemic in South Africa: Key Findings from 2017 National Population-Based Survey. *International Journal of Environmental Research and Public Health*, *19*(13), 8125. https://www.mdpi.com/1660-4601/19/13/8125

Table 1: Determinants of HIV testing among young people in South Africa

Variables	Odds ratio	Std. Err.	t	P>t	95% CI	
					Lower	Upper
Age group						
15-19®	1.00					
20-24	2.31	0.26	7.47	0.000	1.85	2.88
25-29	3.67	0.52	9.12	0.000	2.77	4.85
30-34	3.02	0.45	7.47	0.000	2.26	4.03
Sex						
Men®	1.00					
Women	2.16	0.20	8.37	0.000	1.81	2.59
Population group						
Black®	1.00					
Coloured	0.77	0.17	-1.23	0.221	0.50	1.17
Other	0.22	0.05	-6.85	0.000	0.14	0.34
Marital status						
Never married®	1.00					
In-union	2.20	0.33	5.29	0.000	1.64	2.94
No longer married	1.66	0.61	1.36	0.174	0.80	3.43
Level of education						
No education	0.17	0.06	-4.88	0.000	0.09	0.35
Primary	0.41	0.09	-4.12	0.000	0.27	0.63
Secondary	0.70	0.11	-2.20	0.028	0.51	0.96
Higher®	1.00					
Age at first sex						
Never had sex	0.20	0.03	-10.10	0.000	0.15	0.28
Less than 15®	1.00					
15-19	1.05	0.16	0.35	0.723	0.79	1.41
20-24	0.84	0.20	-0.73	0.463	0.52	1.34
25+	0.49	0.21	-1.66	0.098	0.21	1.14
Multiple sexual partners						
No®	1.00					
Yes	0.88	0.13	-0.89	0.375	0.66	1.17
Household wealth status						
Poor®	1.00					
Average	1.45	0.15	3.61	0.000	1.18	1.77
Rich	1.36	0.19	2.16	0.031	1.03	1.80
Place of residence						
Urban®	1.00					
Rural	0.91	0.10	-0.84	0.399	0.73	1.13
Province						
Western Cape®	1.00					
Eastern Cape	1.04	0.22	0.21	0.834	0.69	1.58
Northern Cape	0.67	0.17	-1.61	0.108	0.42	1.09
Free State	1.04	0.23	0.17	0.863	0.68	1.59
KwaZulu-Natal	1.08	0.23	0.37	0.709	0.71	1.66
North West	1.02	0.22	0.09	0.930	0.66	1.56
Gauteng	0.49	0.11	-3.10	0.002	0.31	0.77
Mpumalanga	1.07	0.23	0.32	0.748	0.70	1.64
Limpopo	0.64	0.14	-2.06	0.040	0.41	0.98
_cons	*2.18*	*0.69*	*2.45*	*0.014*	*1.17*	*4.05*

Note: ® = reference category; CI = confidence interval