Determinants of Viral Load Suppression Among Adolescents on Antiretroviral Therapy in the Kingdom of Eswatini:
A Retrospective Cross-sectional Study

Londiwe D. Hlophe[1], Constance S. Shumba[2], Diribsa T. Bedada[1,3], Peter S. Nyasulu[1,4]

[1] Department of Global Health, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa, [2] Division of Epidemiology and Social Sciences, Institute for Health and Equity, Medical College of Wisconsin, Milwaukee, Wisconsin, United States of America, [3] National Defence University, Addis Ababa, Ethiopia, [4] Division of Epidemiology and Biostatistics, School of Public Health, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa

1. Viral load suppression remains low among adolescents living with HIV (ALHIV) and on antiretroviral therapy at 88,5% in Eswatini, posing a challenge in achieving the UNAIDS 95_95_95 targets by 2025
2. Shiselweni region houses 15% of all the adolescents living with HIV in Eswatini and is statistically associated with unsuppressed viral load among ALHIV

BACKGROUND

- The goal of antiretroviral therapy (ART) is to achieve a sustained HIV suppressed viral load.
- However, adolescents often present poor adherence to ART which is associated with lower rates of viral load suppression (VLS).
- The Kingdom of Eswatini was reported among the first countries to meet and surpass the third 95_95_95 UNAIDS 2025 targets [1].
- In 2022, VLS was 96% among adult population while it was 76% among adolescents and young people [1].
- Adolescent (10 to 19 years old) data is limited due to the long reporting age band of 15 to 24 years.
- The objective of this study was to determine the VLS levels and the associated factors among adolescents aged 10 to 19 years living with HIV and on ART in Eswatini.

METHODS

- A cross-sectional analysis of 911 retrospectively abstracted medical records of adolescents living with HIV (ALHIV) aged 10 to 19 initiated in ART between 2017 and 2022 was conducted.
- Data were summarized using descriptive statistics for categorical variables and by computing proportions, means and standard deviation for continuous variables.
- Using a backward stepwise approach, a multivariable logistic regression analysis was performed to identify factors independently associated with viral suppression using Stata 16. VLS was defined as the last viral load result of ≤1000 copies/ml.
- Variables with p-value 0,05 were considered statistically significant and were retained in the multivariable logistic model with their 95% CI.

RESULTS

- Majority (457; 60%) were females
- 66,6% (606) were aged 15 to 19 years
- Mean age was 16,3 (SD 3,3)
- Mean duration on ART was 1,8 years
- 35,7% diagnosed in 2017: age on average 11,8 years at diagnosis, and spent on average 7 months time average between diagnosis and ART initiation
- **VLS was 88,5%**

Table 1. Characteristics of study participants stratified by VLS

Variable		N (%)	VLS (%)	NVLS
Age	10-14	305 (33,5%)	265 (86,9%)	40 (13,1%)
	15-19	606 (66,5%)	541 (89,3%)	65 (10,7%)
Sex	Female	551 (60,5%)	490 (88,9%)	61 (11,1%)
	Male	360 (39,5%)	361 (87,8%)	44 (12,2%)
Region	Hhohho	355 (39,0%)	322 (90,7%)	33 (9,3%)
	Lubombo	184 (20,2%)	161 (87,5%)	23 (12,5%)
	Manzini	239(26,2%)	214(88,5%)	25 (10,5%)
	Shiselweni	133 (14,6%)	109 (81,95%)	24 (18,05%)

RESULTS CONTINUED

Table 2: Factors associated with VLS among ALHIV

Variable		Bivariate OR (95% CI)	P-value	Multivariable OR (95% CI)
Age	10-14	Ref	0,595	——
	15-19	1.26 (0.83-1.91)		
Sex	Female	Ref	0,287	——
	Male	0.89 (0.59-1.35)		
Region	Hhohho	Ref	0.249	Ref
	Lubombo	0.72 (0.41-1.26)	0.639	0.54 (0.23-1.28)
	Manzini	0.88 (0.51-1.52)	0.008*	0.89 (0.35-2.11)
	Shiselweni	**0.47 (0.26-2.78)**	**0.249**	**0.37 (0.15-0.91)**

CONCLUSIONS

- VLS remains low among ALHIV in Eswatini posing a significant challenge to achieving the 95-95-95 UNAIDS target by 2025 and ultimately ending HIV pandemic by 2030.
- Additionally, residency in Shiselweni, a predominantly rural area historically linked to poor retention in care for people living with HIV, is associated with higher rates of unsuppressed viral load [2].
- Unsuppressed viral load is a critical concern, as it increases the risk of HIV transmission, impeding progress toward the UNAIDS goals.
- In Eswatini, rates of intergenerational sex are high (32%) with low condom usage (9%) among adolescents and young people posing risk of HIV transmission [3,4]
- There is therefore urgent need for interventions aimed at early ART initiation, regular follow-up, and continuous support among ALHIV in Eswatini especially in the rural settings such as the Shiselweni region.

ADDITIONAL KEY INFORMATION

References:
1.WHO. Eswatini achieves the 95-95-95 HIV treatment target - a decade ahead of 2030 goal | WHO | Regional Office for Africa. 2023
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