

Original Research

Discriminatory Attitudes towards People Living with HIV and its Associated Factors among Adolescent Girls and Young Women in Tanzania: A Nationwide Cross-Sectional Study

Jovinary Adam^{1*}, Pankras Luoga¹, Tumaini Nyamhanga¹

¹Department of Development Studies, School of Public Health and Social Sciences, Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania

***Corresponding author:** Jovinary Adam; Email: adamjovinary3@yahoo.com

Abstract

Introduction: Widespread discriminatory attitudes (DAs) discourage HIV testing and undermine adherence to antiretroviral therapy. This study determined the proportion and factors associated with DAs towards people living with HIV (PLHIV) among adolescent girls and young women (AGYW) in Tanzania.

Methods: A secondary data analysis was conducted using data from the 2022 Tanzania Demographic and Health Survey and Malaria Indicator Survey. A total weighted sample of 5,810 AGYW aged 15 to 24 years was used. Data were analyzed using STATA version 18.0. The strength of the association was measured by using the adjusted odds ratio (AOR) and its associated 95% confidence interval (CI).

Results: The overall DAs towards PLHIV among AGYW in Tanzania were 30.5% (95%CI: 28.7-32.3). Although the proportion of DAs was higher among adolescent girls, 33.0% (95%CI:30.7-35.3), than among young women, 27.7% (95%CI:25.5-30.12). Factors significantly associated with DAs included being aged 15-19 years (AOR=1.21, 95%CI:1.01-1.44), urban residence (AOR=1.80, 95%CI:1.46-2.22), informal education (AOR=1.84, 95%CI:1.35-2.51) and primary education (AOR=1.30, 95%CI:1.04-1.63), poor quintile (AOR=1.39, 95%CI:1.09-1.79), insufficient knowledge on HIV (AOR=1.97, 95%CI:1.58-2.44), never tested for HIV (AOR=1.27,

95%CI:1.07-1.51), having no knowledge on HIV prevention methods (AOR=1.27, 95%CI:1.05-1.55), and never watched television (AOR=1.46, 95%CI:1.17-1.82).

Conclusion: The DAs toward PLHIV among AGYW were 30.5%. This was mostly associated with age, limited knowledge of HIV, residing in urban areas, low education levels and economic status. The study underscores the need for targeted education initiatives to mitigate DAs and enhance understanding of HIV among AGYW in Tanzania.

Keywords: *Discriminatory Attitudes; Adolescent Girls; Young Women; People Living With HIV.*

Introduction

Human Immunodeficiency Virus (HIV) remains a major global public health concern. Since the beginning of the epidemic, approximately 88.4 million people have been infected with HIV, and about 42.3 million people have died (1). Globally, 39.9 million people were living with HIV at the end of 2023 (2–5). An estimated 53% of all PLHIV were women and girls, although the burden of the epidemic continues to vary considerably between countries and regions (6,7). In the African region, there are 25.6 million PLHIV (8). In 2022, approximately 380,000 people died due to AIDS-related illnesses (8,9). An estimated 660,000 people acquired HIV in 2022, and the number of people acquiring HIV among all ages decreased to 0.57 per 1000 uninfected population in 2022 from 1.75 in 2010 (8).

The number of new HIV infections and AIDS-related deaths has continued to decrease globally, bringing the AIDS response closer to achieving Sustainable Development Goal (SDG 3.3) of ending AIDS by 2030 (10). Reducing new infections and deaths is the goal of the Joint United Nations Programme on HIV/AIDS (UNAIDS). Notwithstanding these goals, a recent evaluation of the HIV situation revealed that the global HIV epidemic has not yet been contained (11).

Discrimination is a major barrier to achieving universal access to HIV/AIDS prevention, treatment, care and support programs (12). Discrimination is recognized as one of the greatest challenges to tackling HIV infection and as a major barrier to delivering quality services by health providers (13,14). The effects of HIV-related discrimination are devastating in many ways. These include lowering the uptake of HIV services, delaying the disclosure and the need to travel outside local communities to seek medical and preventive services due to fears of breaches of confidentiality and negative attitudes from health care providers (15).

Studies have highlighted several factors associated with DAs toward PLHIV. These factors include education level, financial status, employment, internet use, geographical location, media exposure, HIV testing, marital status, high-risk behavior, stigmatized identities, sources of HIV infection, disease stage, and relationships with infected individuals (12,16,17).

In Tanzania, the annual HIV incidence among adults aged 15 years and older is 0.18%, which corresponds to approximately 60,000 new cases of HIV per year among adults (18). According to the 2022-2023 Tanzania HIV Impact Survey (THIS), the overall prevalence of HIV among adults in Tanzania was 4.4%, which corresponds to approximately 1,548,000 adults living with HIV. The prevalence was higher among women at 5.6% compared to 3.0% among men (18). According to the 2022 Tanzania Demographic and Health Survey and Malaria Indicator Survey (TDHS-MIS), 28% of women and 27% of men aged 15–49 expressed DAs toward PLHIV (19). PLHIV often experience discrimination in every aspect of their lives: at home, school, work, and when seeking healthcare. Furthermore, discrimination fuels the spread of HIV by driving fear and secrecy around testing and disclosure, and it contributes to lower uptake of health services and treatment adherence (20,21).

There is limited evidence on factors associated with DAs toward PLHIV among AGYW nationwide. Therefore, this study aimed to fill this knowledge gap by using data from the 2022 TDHS-MIS. This knowledge will guide the prioritization of intervention strategies and help in understanding the underlying reasons for DAs.

Methods

Data source

This study used the 2022 TDHS data. The survey was conducted from February 24th to July 21st, 2022, by the Tanzania National Bureau of Statistics (NBS) and the Office of the Chief Government Statistician (OCGS) in collaboration with the Ministry of Health, Tanzania Mainland, and the Ministry of Health, Zanzibar. The unit of analysis for this study was 5,810 AGYW aged 15-24 years (19).

Study design and sampling procedure

This was a nationally based cross-sectional study using the 2022 TDHS-MIS dataset. The study used a stratified two-stage cluster sampling. The first stage involved the selection of sampling points consisting of enumeration areas (EAs) delineated for the 2012 Tanzania Population and

Housing Census. The EAs were selected with a probability proportional to their size within each sampling stratum. A total of 629 clusters were selected. Among the 629 EAs, 211 were from urban areas, while 418 were from rural areas. The second stage entailed the systematic selection of 26 households from each cluster for a total sample size of 16,354 households for the 2022 TDHS-MIS. Of the 16,312 households selected, 15,907 were occupied. A household listing operation was carried out in all the selected EAs before the main survey. A household listing operation was carried out in all the selected EAs before the main survey. All women aged 15-49 years who were either residents or visitors in the household on the night before the survey were included in the survey (19).

Study variables

Dependent variable

The dependent variable was discriminatory attitudes towards PLHIV. To determine the outcome variable, two questions regarding DAs were asked: “Do you think children living with HIV should be allowed to attend school with children who do not have HIV? And would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had HIV? (19). If the response was “No” to any questions, it was recorded as DAs.

Independent variables

The independent variables in this analysis included age (15-19 and 20-24) years, place of residence (urban, rural), education level (informal education, primary, secondary), wealth status (poor, middle income, rich), marital status (never in union, married, separated), employment status (employed, unemployed), comprehensive knowledge on HIV (yes, no), know HIV prevention methods (yes, no), testing for HIV (yes, no), listening to radio (yes, no), watching television (yes, no), and reading newspaper or magazine (yes, no). The selection of these variables was informed by existing literature on similar topics (12,17,22,23). Moreover, comprehensive knowledge about HIV prevention was a composite score based on three questions. (1) A healthy-looking person can have HIV; (2) HIV cannot be transmitted by mosquito bites; and (3). A person cannot get HIV by sharing food with someone who has HIV. A woman was considered to have correct comprehensive knowledge if she answered all three questions correctly and was deemed not knowledgeable if she did not provide the correct answer to at least one of the questions.

Statistical analysis

Data management and statistical analyses were performed using STATA version 18 (StataCorp LLC, College Station, TX, USA). The dataset was cleaned and weighted to account for the complex survey design and ensure national representativeness. The data were weighted using the sample weights (v005/1,000,000) as recommended in the DHS data analysis guidelines. The analysis involved descriptive statistics to present the frequency and percentage distribution of respondents. Using the Variance Inflation Factor (VIF), multicollinearity among the independent variables was assessed. All VIF values were below the commonly accepted threshold of 10, with the highest being 3.7, indicating that no significant multicollinearity existed among the factors.

The Chi-square test was used to assess the association between the outcome variable (in this case, DAs) and the independent variables. All variables with a p-value < 0.25 in the bivariate analyses were included in the multivariable logistic regression model. Multivariable logistic regression was employed to assess the significance and strength of each independent variable influencing DAs while controlling for other explanatory variables. Variables with p-values less than 0.05 were considered to be significantly associated with DAs. The strength of the association was assessed using the adjusted odds ratio (AOR) and its associated 95% confidence interval (CI).

Ethical considerations

DHS surveys are conducted in compliance with the Helsinki Declaration for biomedical research and obtain ethical approval from the review board of Inner City Fund (ICF). No formal ethical clearance was required. However, permission to use the data was requested from the DHS custodian, USAID MEASURES.

Results***Background characteristics of the study participants***

The study's analysis comprised a total weighted sample of 5,810 AGYW between the ages of 15 and 24 years. More than half (53.1%) of the study participants were aged 15-19 years. Nearly two-thirds of the participants resided in rural areas (64.3%), and nearly half (47.9%) had their household wealth categorized in the rich quintile. About 45.2% of the participants had secondary education and above, while approximately 10.9% reported having informal education. More than half (57.4%) of the participants reported that they had never been married (Table 1).

Table1: Background characteristics of the study participants (n=5,810, Weighted sample)

Variable	Frequency	Percentage
Age group (years)		
15-19	3,083	53.1
20-24	2,727	46.9
Place of residence		
Urban	2,075	35.7
Rural	3,735	64.3
Education level		
Secondary and above	2,624	45.2
Primary	2,550	43.9
Informal education	636	10.9
Wealth status		
Rich	2,782	47.9
Middle	1,108	19.1
Poor	1,920	33.0
Employment status		
Employed	2,721	46.8
Unemployed	3,089	53.2
Marital status		
Single	3,332	57.4
Married	2,179	37.5
Separated	299	5.1
Tested for HIV		
Yes	1,755	30.2
No	4,055	69.8
Know HIV prevention methods		
Yes	3,348	57.6
No	2,462	42.4
Comprehensive knowledge of HIV		
Yes	2,423	41.7
No	3,387	58.3
Listening to the radio		
Yes	3,312	57.01
No	2,498	42.99
Watching television		
Yes	2,905	50.0
No	2,905	50.0
Reading a newspaper or magazine		
Yes	1,295	22.3
No	4,515	77.7

DAs towards PLHIV among AGYW in Tanzania

The overall proportion of DAs toward PLHIV among AGYW in Tanzania was 30.5% (95%CI:28.7-32.3). Although the proportion of DAs among adolescent girls aged 15-19 years was

higher at 33.0% (95%CI:30.7-35.3) than that of young women aged 20–24 years at 27.7% (95%CI: 25.5-30.1), as shown in Table 2.

Results of Chi-square tests indicating the associations between independent variables and DAs towards PLHIV

The percentage of DAs toward PLHIV was higher among AGYW in urban areas (31.4%) compared to those in rural areas (30.0%). DAs toward PLHIV decreased with increasing education level among AGYW, from 44.5% in those with informal education to 25.1% among those with secondary education and above. Similarly, the percentage of respondents with DAs toward PLHIV was higher among AGYW in poor households (37.0%) compared to those from middle (26.9%) and rich households (27.5%). There were also differences by age in DAs. For example, 33.0% of women aged 15-19 had DAs compared to 27.7% for those aged 20-24 years (Table 2).

Table 2: Shows the association between independent variables and DAs towards PLHIV

Variable	Number (%) Das	P-value
Age group (years)		
15-19	1,016 (33.0)	<0.001
20-24	756 (27.7)	
Place of residence		
Urban	652 (31.4)	0.170
Rural	1,120(30.0)	
Education level		
Secondary and above	658 (25.1)	<0.001
Primary	831 (32.6)	
Informal education	283 (44.5)	
Wealth status		
Rich	764 (27.5)	<0.001
Middle	298 (26.9)	
Poor	710 (37.0)	
Employment status		
Employed	829(30.5)	0.197
Unemployed	943 (30.5)	
Marital status		
Never in union	1,023(30.7)	0.118
Married	673 (30.9)	
Separated	76 (25.3)	
Tested for HIV		
Yes	442 (25.2)	<0.001
No	1,330 (32.8)	
Know HIV prevention methods		

Yes	771 (23.0)	<0.001
No	1,001 (40.7)	
Comprehensive knowledge of HIV		
Yes	465 (19.2)	<0.001
No	1,307 (38.6)	
Listening to the radio		
Yes	931 (28.1)	0.003
No	841(33.7)	
Watching television		
Yes	744 (25.6)	<0.001
No	1,028 (35.4)	
Reading a newspaper or magazine		
Yes	1,400 (28.7)	0.1302
No	372. (31.0)	

Factors associated with DAs towards PLHIV among AGYW in Tanzania

As shown in the multivariable logistic regression output in Table 3, the odds of having DAs against PLHIV were higher among women aged 15-19 years (AOR=1.21, 95%CI:1.01-1.44) compared to women aged 20-24 years. AGYW residing in urban areas (AOR=1.80, 95%CI:1.46-2.22) had higher odds of DAs compared to those in rural areas. AGYW with informal education (AOR=1.84, 95%CI:1.35-2.51) and primary education (AOR=1.30, 95%CI:1.04-1.63) had higher odds of DAs compared to those with secondary education and above. Moreover, the odds of having DAs against PLHIV were higher among AGYW in the poor quintile (AOR=1.39, 95%CI:1.09-1.79) compared to their counterparts in the rich quintile. The odds of having DAs were 1.97 (95%CI:1.58-2.44) times higher among individuals who had no comprehensive knowledge about HIV compared to those who had.

Additionally, AGYW who had never tested for HIV (AOR=1.27, 95%CI:1.07-1.51), those with no knowledge of HIV prevention methods (AOR=1.27, 95%CI:1.05-1.55), and those who had never watched television (AOR=1.46, 95%CI:1.17-1.82) had higher odds of DAs.

Table 3: Factors associated with DAs towards PLHIV among AGYW in Tanzania

Variable	COR	95%CI	P-value	AOR	95%CI	P-value
Age group (years)						
20-24	Ref			Ref		
15-19	1.28	1.12-1.47	<0.001	1.21	1.01-1.44	0.036
Place of residence						

Rural				Ref		
Urban	1.07	0.89-1.29	0.465	1.80	1.46-2.22	<0.001
Education level						
Secondary and above	Ref			Ref		
Primary	1.45	1.20-1.74	<0.001	1.30	1.04-1.63	0.020
Informal education	2.40	1.88-3.07	<0.001	1.84	1.35-2.51	<0.001
Wealth status						
Rich	Ref			Ref		
Middle	0.97	0.79-1.20	0.779	1.01	0.79-1.28	0.952
Poor	1.55	1.28-1.88	<0.001	1.39	1.09-1.79	0.009
Employment status						
Employed	Ref			Ref		
Unemployed	1.00	0.87-1.16	0.959	0.94	0.81-1.10	0.447
Marital status						
Never in union	Ref			Ref		
Married	1.01	0.86-1.19	0.919	0.94	0.73-1.19	0.600
Separated	0.77	0.54-1.08	0.132	0.79	0.54-1.13	0.203
Tested for HIV						
Yes	Ref			Ref		
No	1.45	1.22-1.72	<0.001	1.27	1.07-1.51	0.007
Know HIV Prevention Methods						
Yes	Ref			Ref		
No	2.29	1.98-2.65	<0.001	1.27	1.05-1.55	0.016
Comprehensive knowledge of HIV						
Yes	Ref			Ref		
No	2.65	2.26-3.11	<0.001	1.97	1.58-2.44	<0.001
Listening to the radio						
Yes	Ref			Ref		
No	1.30	1.09-1.54	0.003	0.89	0.74-1.08	0.253
Watching television						
Yes	Ref			Ref		
No	1.59	1.34-1.89	<0.001	1.46	1.17-1.82	<0.001
Reading a newspaper or magazine						
Yes	Ref			Ref		
No	1.12	0.93-1.33	0.230	0.94	0.78-1.14	0.545

Discussion

This study determined the proportion and factors associated with DAs towards PLHIV among AGYW in Tanzania. The overall proportion of DAs toward PLHIV among AGYW in Tanzania was 30.5%. Previous studies found that these attitudes are driven by fear of acquiring HIV through personal contact, such as sharing a spoon, and by a lack of accurate information about HIV (17,24).

The DAs toward PLHIV among AGYW in Tanzania are higher compared to those in Kenya (25.5%) (26) but lower compared to Ghana (81.7%) (27). The possible explanations for such variation could be due to differences in cultural beliefs, education and awareness about the disease, the effectiveness of public health campaigns, legal frameworks, government support for anti-discrimination initiatives, and geographical disparities. The study's findings align with those of a previous scoping review conducted in sub-Saharan Africa (28).

Regarding associated factors, the study found that adolescent girls aged 15-19 years were more likely to hold DAs toward PLHIV compared to young women aged 20-24 years. This may be due to limited access to HIV/AIDS education and less accumulated life experience among younger adolescents, which can increase reliance on misconceptions and societal stereotypes (22,28). These findings are consistent with previous studies in Africa, which reported higher stigma among younger age groups (28,29). This similarity may be explained by shared structural barriers to comprehensive HIV education. The results highlight the need to include AGYW in the planning and delivery of HIV services and targeted interventions to reduce discriminatory practices within healthcare facilities and communities. The study found that AGYW residing in urban areas exhibited higher DAs toward PLHIV compared to those in rural areas. This may be due to the complex social dynamics in urban settings, including exposure to diverse social networks, competing social norms, and more visible social hierarchies, all of which can shape attitudes toward PLHIV. Urban residents may also face greater social pressures to conform to perceived societal expectations, which can exacerbate negative beliefs and discriminatory behaviors. These findings are consistent with studies from Pakistan and Malaysia (30,31), whereby urban and suburban populations demonstrated higher levels of discrimination. However, contradict with other studies that reported higher discrimination in rural areas (32,33). This discrepancy likely reflects cultural, social, and structural differences across study settings that influence knowledge, perceptions, and social interactions related to HIV. Overall, the results highlight the need for context-specific interventions, particularly in urban populations to address local drivers of stigma. The study found that AGYW with lower education level were more likely to hold DAs toward PLHIV compared to those with higher education. This may be because a low education level is often associated with adherence to traditional norms and practices that support DAs, as well as limited understanding of HIV transmission and prevention (34). In contrast, higher-educated

AGYW may have greater access to health facilities, media, and accurate HIV-related information, which can foster more positive attitudes. These findings are consistent with studies from India and China, where educational and skills-based interventions reduced discrimination toward PLHIV (35,36). This similarity may reflect the universal role of education in shaping knowledge, attitudes, and social norms regarding HIV. The results highlight the importance of integrating education-focused strategies into HIV programmes to address discriminatory attitudes among less-educated AGYW.

The study found that AGYW in the poor wealth quintile had higher odds of having DAs toward PLHIV compared to those in the rich quintile. This may be due to limited access to education, health information, and HIV-related services among poorer AGYW, which can increase reliance on misconceptions, fear, and societal stereotypes about HIV. These findings are consistent with previous studies that reported a significant association between lower socio-economic status and higher DAs toward PLHIV (37,38). The similarity across these studies may reflect the widespread influence of socio-economic factors on knowledge, perceptions, and social norms related to HIV. Therefore, these results highlight the need for targeted interventions that address economic disparities, improve access to HIV education, and promote supportive attitudes toward PLHIV among AGYW from poor households. Additionally, this study found that adolescent girls who had never tested HIV had higher odds of holding DAs toward PLHIV. This may be because HIV testing services provide critical opportunities for education and counselling, which can correct misconceptions and reduce fear-related stigma. Without this experience, adolescents may rely on societal stereotypes or inaccurate information, which can perpetuate negative attitudes. This finding is consistent with previous studies conducted in other African settings (17,22,34), which reported that individuals who had never tested for HIV were more likely to express negative attitudes toward PLHIV. This may be due to shared socio-cultural contexts across African settings. This can imply that increasing access to HIV testing among adolescents, coupled with quality counselling, could be an important strategy for reducing HIV-related discrimination.

This study also found that AGYW who had never watched television had higher odds of having DAs toward PLHIV. This may be because a lack of television exposure limits engagement with broader societal discussions, reducing access to accurate information and making AGYW more susceptible to local biases, misconceptions and stigma. Television has been shown to increase public awareness of

HIV/AIDS by disseminating factual information, correcting harmful stereotypes, and promoting positive attitudes and value systems that emphasize empathy and care for PLHIV (39,40). This finding is consistent with previous studies conducted in Africa (12,34) which reported that limited exposure to mass media was associated with higher levels of HIV-related stigma and DAs. These results suggest that interventions aimed at reducing HIV-related discrimination should include mass media campaigns that reach AGYW, particularly those with limited access to television, as a strategy to promote awareness, correct misconceptions, and foster more supportive attitudes toward PLHIV.

Conclusions

The DAs towards PLHIV among AGYW was 30.5%. This was mostly associated with age, residing in urban areas, lower level of education, low economic status, limited knowledge on HIV and a lack of HIV testing experience. The study highlights the need for targeted education initiatives by the Ministry of Health, policymakers and HIV program stakeholders, specifically focusing on AGYW to mitigate DAs and enhance understanding of HIV in Tanzania.

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Authors' contributions: JA initiated the topic, analysed the data, wrote the first draft of the paper, interpreted the findings and wrote the final paper. PL&TN was involved in the inception of the idea and design of the study, provided technical support and reviewed all versions of the manuscript. All authors reviewed and approved the final manuscript.

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