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HIV Awareness in Bujumbura: Are People with Disabilities Falling through the Cracks?

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ABSTRACT

This article examines the levels of HIV knowledge among individuals with disabilities compared to their counterparts without disabilities in Bujumbura, as well as individual and environmental factors influencing HIV knowledge acquisition. Data were sourced from the HandiSSR survey, conducted between 2017 and 2018, using stratified random sampling of 600 participants with disabilities and 600 without disabilities (serving as a control group). The data analysis proceeded in two stages: First, Chi-square tests assessed the bivariate associations between HIV knowledge levels and disability status, controlling for various sociodemographic variables. Then, binary logistic regression was used to identify predictive factors for low HIV knowledge. The results indicate that individuals with disabilities are 2.2 times more likely to have significantly lower levels of HIV knowledge compared to those without disabilities, revealing a marked disparity in access to HIV information. The analysis identifies age, education level, and economic activity as critical variables impacting these knowledge levels. These findings highlight that, even 40 yrs after the start of the global response to HIV, prevention programs remain largely inadequate and insufficiently inclusive of the specific needs of people with disabilities. This persistent inadequacy severely undermines the effectiveness of HIV prevention strategies. Integrating these findings into existing theoretical frameworks, such as Bandura's theory of self-efficacy, demonstrates a real risk of sustaining HIV transmission hotspots within populations with disabilities, thereby compromising global and national efforts to eliminate this disease by 2030.

Keywords: Disability; Sexual initiation; HIV; Vulnerability

INTRODUCTION

The political declaration on HIV and AIDS adopted by the United Nations General Assembly in June 2016 marked an important step in the fight against this global pandemic. World leaders committed to eliminating AIDS as a public health threat by 2030, an ambitious goal requiring concerted global efforts to include all populations, including those historically marginalized, such as people with disabilities [1]. This initiative aims to transform health systems, promote equality and protect human rights by ensuring universal access to healthcare and eliminating the stigma and discrimination associated with HIV.

Eradicating HIV requires a comprehensive and inclusive response that leaves no one behind. However, certain populations, due to their marginalization and social exclusion, remain particularly vulnerable to the HIV epidemic. People with disabilities are among these marginalized groups. The WHO's World Report on Disability estimates that people with disabilities represent approximately 15% of the world's population, with a large majority living in low-income countries [2]. These individuals face multiple challenges, including higher rates of poverty, limited access to education and employment, as well as physical and social barriers that hinder their access to essential health services [3,4].

Consequently, people with disabilities are often excluded from HIV prevention campaigns and do not sufficiently benefit from educational programs and screening initiatives that could protect them from infection. HIV education plays an important role in

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preventing the transmission of the virus and adopting effective preventive behaviors. Individuals well-informed about HIV are more likely to adopt safe sexual practices and regularly seek HIV testing, thereby reducing the risk of transmission [5].

Behavioral theories, such as Bandura's self-efficacy theory, support the idea that increased HIV knowledge strengthens the self-confidence necessary to adopt effective preventive behaviors [6,7]. Global efforts to eradicate HIV will only be fully effective if all individuals, including people with disabilities, have equitable access to information and prevention services. Yet, people with disabilities are often excluded from HIV prevention programs due to their social marginalization, discrimination, and the physical barriers they face.

The UN Convention on the "Rights of Persons with Disabilities", ratified by many countries, includes the right of people with disabilities to health, education, and non-discrimination, but these rights often remain theoretical and do not translate into the daily reality of many people with disabilities [8]. National and international policies and programs must be adapted to ensure that people with disabilities fully benefit from progress made in the fight against HIV.

The aim of this article is to explore and compare the acquisition of HIV knowledge between people with disabilities and those without disabilities in Bujumbura while identifying the underlying individual and environmental factors. The research questions addressed are as follows:

- What is the level of HIV knowledge acquisition among people with disabilities compared to those without disabilities in Bujumbura?
- What are the individual (age, gender, economic activity, education level) and environmental factors (living standards, social participation, social network) influencing HIV knowledge acquisition among people with and without disabilities?

By exploring these questions, this article aims to contribute to a better understanding of health inequalities and inform public policies aimed at improving access to important HIV information for people with disabilities, thereby contributing to the global goal of ending the AIDS epidemic by 2030.

The acquisition of HIV knowledge is important for the prevention and effective management of this disease. Studies have shown that individuals well-informed about HIV are more likely to adopt preventive behaviors, such as using condoms and regularly seeking HIV testing, thus reducing the risk of transmission [5]. HIV education plays a key role in enhancing the understanding of transmission modes, risks, and prevention methods, which is essential for reducing the spread of the virus [9].

Behavioral theories, such as Bandura's self-efficacy theory, support the idea that increased knowledge about HIV enhances the self-confidence necessary to adopt effective preventive behaviors [6,7]. A recent meta-analysis confirmed that HIV education is significantly associated with a reduction in risky sexual behaviors and an increase in the use of testing and treatment services [10].

People with disabilities face several significant barriers that limit their acquisition of HIV knowledge. First, social marginalization and increased stigma often render people with disabilities invisible in HIV prevention campaigns and educational programs, discouraging their pursuit of HIV information [9]. Additionally, the physical and social obstacles they face limit their access to health services, including HIV information, as health facilities are often not accessible [11]. Furthermore, people with disabilities may have difficulty communicating effectively due to sensory, cognitive, or communication impairments, limiting their ability to receive HIV information in an accessible and understandable manner [12].

Studies have shown that people with disabilities have unequal access to health information, including HIV, due to their exclusion from formal health systems and educational campaigns [3]. Outreach programs tailored to people with disabilities are important for improving their understanding of HIV by taking into account their specific communication and physical access needs [9]. Moreover, the socio-economic inequalities faced by people with disabilities, such as poverty and limited access to education, increase their vulnerability to HIV, highlighting the importance of interventions aimed at reducing these inequalities to improve their access to HIV information [3].

Education level plays an important role in acquiring HIV knowledge. Individuals with higher education levels tend to have a better understanding of HIV transmission modes, prevention methods, and available testing services. Studies have shown that formal education is positively correlated with HIV knowledge, as it enhances the ability to understand and use preventive information [5,10]. For example, Bandura [6] emphasizes that education improves self-efficacy, which is important for adopting preventive behaviors.

Age and gender are also important factors influencing HIV knowledge. Young adults and adolescents are particularly vulnerable to HIV due to increased risky behaviors and lower knowledge of prevention methods [9]. Gender differences also influence knowledge, with women often being less informed than men about HIV due to restrictive social norms and gender roles [4].

Socio-economic status strongly influences the acquisition of HIV knowledge. Individuals with higher socio-economic status generally have better access to information and health services, improving their understanding of HIV and their ability to adopt preventive behaviors [3]. Poverty and economic inequalities increase vulnerability to HIV by limiting access to education and prevention resources.

Access to health services is essential for acquiring practical HIV knowledge. People with limited access to HIV testing and treatment services often have insufficient knowledge of risks and prevention methods. Physical and social barriers, such as inaccessible health facilities and the stigma of living with HIV, hinder the acquisition of HIV knowledge among vulnerable populations [12].

Stigma related to HIV and disability limits access to information and health services for people with disabilities, negatively

affecting their HIV knowledge. Social prejudices and discrimination reduce the participation of people with disabilities in HIV prevention programs despite international policies aimed at protecting their rights [9].

Despite advances in understanding HIV knowledge, significant gaps remain in research concerning people with disabilities. Most previous studies have focused on general populations or have neglected the specific barriers faced by people with disabilities, such as stigma, physical barriers, and communication deficiencies. As a result, there is an underrepresentation of the unique challenges these individuals face and a lack of thorough evaluation of their HIV knowledge level compared to their counterparts without disability. This article aims to fill these gaps by providing a detailed analysis of the differences in HIV knowledge between people with and without disabilities in Bujumbura. By using data from the HandiSSR survey and applying rigorous analytical methods such as Chi-square tests and binary logistic regression, this study offers insights into the impact of disability on the acquisition of HIV knowledge. The main contribution of this article lies in identifying specific factors influencing the disparity in HIV knowledge and proposing recommendations to adapt prevention programs to the needs of people with disabilities, thus improving their access to information and reducing health inequalities.

Conceptual model and research hypotheses

The hypothesis of our study is that disability negatively influences the acquisition of HIV knowledge, regardless of individual or environmental factors. People with disabilities are more at risk of having low HIV knowledge than those without disabilities [13].

To test this hypothesis, we constructed a conceptual model in which differences in HIV knowledge between people with and without disabilities are explored through several theoretical perspectives and the International Classification of Functioning, Disability, and Health (ICF) conceptual framework [14]. According to the ICF, disability is understood as resulting from the interaction between impairments, activity limitations, and participation restrictions, influenced by personal and environmental factors [15]. Knowledge acquisition theories, such as Social Learning Theory [6], and Health Communication Theory [16], provide a framework for understanding how individuals, whether with disability or not, acquire information about HIV. Personal factors such as age, gender, education level and environmental factors such as social network, social participation and living standards play an important role in this acquisition [17].

For people with disabilities, physical, sensory, mental, or communication impairments may limit access to HIV information. For example, physical barriers may restrict participation in educational programs or awareness campaigns, while sensory limitations may hinder the receipt of health messages [18]. Furthermore, environmental factors, such as the accessibility of information and adapted health services, can vary significantly, influencing learning opportunities and understanding of HIV [19].

In contrast, for people without disabilities, disability-related barriers are less present, allowing more direct access to educational programs and information on HIV prevention, treatment, and management. This can lead to higher knowledge levels and a better ability to make informed health decisions [20].

In summary, this conceptual model highlights the importance of considering both individual functional capabilities and environmental contexts in analyzing differences in HIV knowledge between people with and without disabilities. Our conceptual model can be summarized in the following Figure 1.

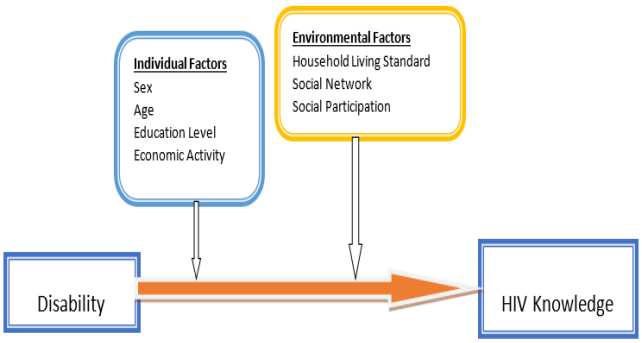

Figure 1: Individual and environmental factors in analyzing differences in HIV knowledge between people with and without disabilities.

METHODOLOGY

Sampling

The data used in this article comes from the HandiSSR survey conducted in Bujumbura between 2017 and 2018. HandiSSR is a cross-sectional survey of people with disabilities with a control group composed of individuals without disabilities who have the same sociodemographic characteristics. Households were selected from the general population using a process that limits selection bias, and people with disabilities were identified using the Washington Group questionnaire in each selected household (screening phase) [21]. Disability assessment in this article was carried out using the Washington Group tool, widely recommended for its proven reliability and validity [22]. This tool, developed and validated by the Washington Group on Disability Statistics, is considered the standard for measuring disability consistently and robustly in surveys [23]. Empirical studies have demonstrated that the Washington Group Short Set of Questions on Disability is not only reliable but also valid for capturing the diverse dimensions of disability across different cultural and geographic contexts [24,25]. By integrating these questions into our survey, we were able to benefit from a proven methodology allowing a more accurate and comparable assessment of disability levels among participants [26]. This approach ensures that the results obtained are solid and can be compared to those of other studies using the same instrument, thereby enhancing the credibility of our analysis [27].

Eligible people with disabilities were invited to answer a questionnaire about their disability, socio-economic characteristics, and HIV knowledge. The control group was chosen from the close neighborhood of the selected individuals with disabilities. They were matched to people with disabilities

according to gender, age, and enumeration area. People with disabilities were selected using a two-stage stratified random sampling method that limits selection bias. In the first stage, Enumeration Areas (EAs) were selected with a probability proportional to the number of households based on the sampling frame retained by the 2016 Demographic and Health Survey (DHS), which itself was derived from the 2008 General Population and Housing Census (RGPH) [28]. The total number of enumeration areas calculated based on the targeted sample size. A sample of 600 people with disabilities aged 15 to 49 and 600 people from the matched control group were chosen.

Variables

Sociodemographic variables are:

Acquisition of HIV knowledge: This dependent variable measures the level of HIV knowledge. It is a composite variable with three levels: Low knowledge, moderate knowledge and high knowledge. This variable was constructed from questions about knowledge of HIV transmission modes and prevention methods. People with scores below 50% were classified as having low knowledge, those with scores between 50% and 79% were classified as having moderate knowledge, and those with scores equal to or above 80% were classified as having high knowledge. The reliability test showed that the Cronbach's Alpha index was above 0.7 [29].

Disability: The "Disability" variable indicates whether a participant is with disability or not. This information is collected using the Washington Group's Disability Statistics tool, which includes six questions assessing functional limitations [22]. This variable has two levels: Person with Disability (PW) or Person Without Disability (PWoD) (control group).

Individual factors

Individual factors include:

Age: Participants' ages were subdivided into two categories: adults (25-49 yrs) and adolescents and young people (15-24 yrs).

Gender: Participants' biological gender was divided into two levels: Male and female.

Education level: Education level was categorized into three levels: No education, primary education and secondary education or higher.

Economic activity: Economic activity was categorized into three levels: Unemployed, those working in small trades and salaried/self-employed.

Environmental factors

Environmental factors include:

Social network: This variable was constructed from the number of friends or relatives (family) seen within a month. People with zero were classified as having "No social network," and those with one or more were classified as "Having a social network."

Social participation: We constructed a composite variable using the 20 Social Participation Scales. We then classified individuals into two categories: "Full social participation" for those with a 100% social participation score and "Partial social participation" for those with a score below 100%. The reliability test showed that the Cronbach's Alpha index was above 0.7 [30].

Living standards: Living standards is a composite indicator calculated from household characteristics and assets. The reliability test showed that the Cronbach's Alpha index was above 0.7 [31].

Analysis methods

For data analysis in this study, we adopted a two-step approach to understand the relationships between HIV knowledge acquisition and disability. The first step involved using Chi-square tests to examine bivariate associations, while the second step employed binary logistic regression to identify independent factors associated with low HIV knowledge.

Bivariate analysis: Initially, Chi-square tests were conducted to assess the associations between HIV knowledge levels (dependent variable) and disability (independent variable), as well as other control variables such as gender, age, education level, economic activity, well-being quintiles, social network and social participation.

Binary logistic regression: To better understand the predictive factors of low HIV knowledge, binary logistic regression was used. This method was chosen to assess the association between low HIV knowledge (binary dependent variable) and disability (independent variable), while controlling for the following variables: Gender, Age, Education Level, Economic Activity, Well-being Quintiles and Social Participation.

RESULTS

The table below presents a comparative analysis of HIV knowledge between people with disabilities and people without disabilities, considering individual or environmental variables. This analysis reveals significant disparities in HIV knowledge acquisition, indicated by a significant Chi-square test at a level below 1% (***) (Table 1).

Table 1: Distribution of HIV knowledge acquisition by disability status according to individual or environmental factors.

Variables	Modalities	Strong knowledge % (N		Medium knowledge % (N)		Weak knowledge % (N)		Significance
		PWD	PWoD	PWD	PWoD	PWD	PWoD	
Sex	Women	9.2% (28)	17.5% (52)	41.6% (126)	56.9% (169)	49.2% (149)	25.6%(76)	***
	Men	8.8% (26)	14.9% (45)	22.9% (68)	56.8% (172)	68.4% (203)	28.4% (86)	***

Age	15-24 yrs (Adolescents and youth)	2% (4)	4.2% (9)	22.4% (45)	52.7% (106)	75.6% (152)	42.8% (86)	***
	25-49 yrs (adults)	12.5% (50)	22.1% (88)	37.3% (149)	58 .9% (235)	50.1% (200)	19% (76)	***
Education	No education	5.4% (12)	12.2% (9)	21% (47)	48.6% (36)	73.7% (165)	39.2% (29)	***
	Primary level	7.4% (12)	13.6% (18)	35.2% (57)	50.8% (67)	57.4% (93)	35.6% (47)	***
	Secondary level and above	14% (30)	17.8% (70)	42.1% (90)	60.4% (238)	43.9% (94)	21.8% (86)	***
Economic activity	No activity	6.1% (19)	10.8% (24)	27.1% (85)	55% (122)	66.9% (210)	34.2% (76)	***
	Small trades	9.5% (14)	16.5% (27)	44.6% (66)	57. 3% (94)	45.9% (68)	26.2% (43)	***
	Employees or Self-employed	19% (16)	22.1% (40)	35.7% (30)	60.2% (109)	45.2% (38)	17.7% (32)	***
Social network	No social network	9.1% (34)	17.2% (39)	29% (108)	57.9% (132)	61.8% (230)	25% (57)	***
	Has a social network	8.8% (20)	15.6% (58)	37.7% (86)	56.2% (209)	53.5% (122)	28.2% (105)	***
Social participation	Partial participation	9.3% (48)	10% (69)	33.4% (172)	38.5% (267)	57.3% (295)	34.8% (62)	***
	Full participation	19.2% (5)	18.7% (75)	26.9% (7)	58.7% (236)	53.8% (14)	22.6% (91)	***
Living standard	Very poor	8.3% (15)	13.8% (16)	34.1% (45)	50.9% (59)	57.6%(76)	35.3% (41)	***
	Poor	6.4% (8)	12.4% (14)	33.6% (42)	58.4% (66)	60% (75)	29.2% (33)	***
	Average	8% (9)	15.2% (17)	28.3% (32)	57.1% (64)	6 3.7% (72)	27.7% (31)	***
	Rich	11.8% (14)	16.2% (21)	34.5% (41)	57.7% (75)	53.8% (64)	26.2% (34)	***
	Very rich	10.8% (12)	22.5% (29)	30.6% (34)	59.7% (77)	58.6% (65)	17.8% (23)	***
Overall		9% (54)	16.2% (97)	32.3% (194)	56.8% (341)	58.7 (359)	27% (162)	***

Note: (*)indicated by a significant Chi-square test at a level below 1%.

The table above shows that overall, People with Disabilities (PWD) have significantly lower levels of HIV knowledge compared to People Without Disabilities (PWoD). Among PWD, only 9% have strong knowledge, 32.3% have moderate knowledge, and 58.7% have low knowledge. In comparison, among PWoD, 16.2% have strong knowledge, 56.8% have moderate knowledge and 27% have low knowledge.

Gender

Women with disability exhibit a lower level of HIV knowledge compared to women without disability. Among women, 9.2% of PWD have strong knowledge compared to 17.5% of PWoD, 41.6% of PWD have moderate knowledge compared to 56.9%of PWoD, and 49.2% of PWD have low knowledge compared to 25.6% of PWoD. Among men, the trend is similar: 8.8% of PWD have strong knowledge compared to 14.9% of PWoD, 22.9% of PWD have moderate knowledge compared to 56.8%of PWoD, and 68.4% of PWD have low knowledge compared to 28.4% of PWoD.

Age

For adolescents and young people (15-24 yrs), only 2% of PWD have strong knowledge compared to 4.2% of PWoD, 22.4% of PWD have moderate knowledge compared to 52.7% of PWoD, and 75.6% of PWD have low knowledge compared to 42.8% of PWoD. Among adults (25-49 yrs), 12.5% of PWD have strong knowledge compared to 22.1% of PWoD, 37.3% of PWD have moderate knowledge compared to 58.9% of PWoD, and 50.1% of PWD have low knowledge compared to 19% of PWoD.

Education

Individuals without education show significant gaps: 5.4% of PWD have strong knowledge compared to 12.2% of PWoD, 21% of PWD have moderate knowledge compared to 48.6% of PWoD, and 73.7% of PWD have low knowledge compared to 39.2% of PWoD. For those with a primary education level, 7.4% of PWD have strong knowledge compared to 13.6% of PWoD, 35.2% of PWD have moderate knowledge compared to 50.8% of PWoD, and 57.4% of PWD have low knowledge compared to

35.6% of PWoD. Finally, among those with a secondary education level or higher, 14% of PWD have strong knowledge compared to 17.8% of PWoD, 42.1% of PWD have moderate knowledge compared to 60.4% of PWoD, and 43.9% of PWD have low knowledge compared to 21.8% of PWoD.

Economic activity

Among those without economic activity, 6.1% of PWD have strong knowledge compared to 10.8% of PWoD, 27.1% of PWD have moderate knowledge compared to 55% of PWoD, and 66.9% of PWD have low knowledge compared to 34.2% of PWoD. Among those engaged in small trades, 9.5% of PWD have strong knowledge compared to 16.5% of PWoD, 44.6% of PWD have moderate knowledge compared to 57.3% of PWoD, and 45.9% of PWD have low knowledge compared to 26.2% of PWoD. For salaried or self-employed individuals, 19% of PWD have strong knowledge compared to 22.1% of PWoD, 35.7% of PWD have moderate knowledge compared to 60.2% of PWoD, and 45.2% of PWD have low knowledge compared to 17.7% of PWoD.

Social network

Among those without a social network, 9.1% of PWD have strong knowledge compared to 17.2% of PWoD, 29% of PWD have moderate knowledge compared to 57.9% of PWoD, and 61.8% of PWD have low knowledge compared to 25% of PWoD. For those with a social network, 8.8% of PWD have strong knowledge compared to 15.6% of PWoD, 37.7% of PWD have moderate knowledge compared to 56.2% of PWoD, and 53.5% of PWD have low knowledge compared to 28.2% of PWoD.

Social participation

Individuals with disability exhibit lower levels of HIV knowledge compared to the control population (PWoD) when controlling for social participation. Among those with partial social participation, 9.3% of PWD have strong knowledge compared to 11.8% of PWoD, 33.4% of PWD have moderate knowledge compared to 53.4% of PWoD, and 57.3% of PWD have low knowledge compared to 34.8% of PWoD. Among those with full social participation, 19.2% of PWD have strong knowledge compared to 18.7% of PWoD, 26.9% of PWD have moderate knowledge compared to 58.7% of PWoD, and 53.8% of PWD have low knowledge compared to 22.6% of PWoD.

Living standards

Among the very poor, 8.3% of PWD have strong knowledge compared to 13.8% of PWoD, 34.1% of PWD have moderate knowledge compared to 50.9% of PWoD, and 57.6% of PWD have low knowledge compared to 35.3% of PWoD. The poor show that 6.4% of PWD have strong knowledge compared to 12.4% of PWoD, 33.6% of PWD have moderate knowledge compared to 58.4% of PWoD, and 60% of PWD have low knowledge compared to 29.2% of PWoD. For the middle class, 8% of PWD have strong knowledge compared to 15.2% of PWoD, 28.3% of PWD have moderate knowledge compared to 57.1% of PWoD, and 63.7% of PWD have low knowledge compared to 27.7% of PWoD. The rich show that 11.8% of PWD have strong knowledge compared to 16.2% of PWoD, 34.5% of PWD have moderate knowledge compared to 57.7% of PWoD, and 53.8% of PWD have low knowledge compared to 26.2% of PWoD. Finally, among the very rich, 10.8% of PWD have strong knowledge compared to 22.5% of PWoD, 30.6% of PWD have moderate knowledge compared to 59.7% of PWoD, and 58.6% of PWD have low knowledge compared to 17.8% of PWoD.

The results consistently show that people with disabilities have significantly lower levels of HIV knowledge compared to people without disabilities, regardless of the sociodemographic variable considered. These differences are statistically significant and persist across gender, age, education, economic activity, social network, and living standards (Table 2).

Table 2: Logistic regression results.

Variables	Modalities	B	E.S	Wald	ddl	Significance	Exp(B)
Disability	PWoD®						
	PWD	0.786	0.2	15.374	1	0.001	1.959
Sex	Women®						
	Men	-0.665	0.151	19.399	1	0.001	0.514
Age	15-24 yrs (adolescents and youth)	1.081	0.173	39.035	1	0.001	2.949
	25-49 yrs (adults)®						
Education	No education	1.405	0.197	50.965	1	0.001	4.077
	Primary level	0.914	0.184	24.586	1	0.001	2.495
	Secondary level and above®						
Economic activity	No activity	0.673	0.209	10.372	1	0.001	1.959
	Small trades	0.127	0.215	0.347	1	0.556	1.135
	Employees or self-employed®						

Social network	No social network	0.069	0.157	0.195	1	0.658	1.072
	Has a social network®						
Social participation	Partial participation	0.4	0.207	3.746	1	0.053	1.492
	Full participation®						
Living Standard	Very poor	0.057	0.237	0.057	1	0.811	1.059
	Poor	0.063	0.233	0.074	1	0.786	1.065
	Average	0.281	0.237	1.405	1	0.236	1.325
	Rich	-0.116	0.236	0.241	1	0.624	0.891
	Very rich®						
Constant		-2.109	0.249	71.716	1	0.0001	0.121

The model statistics show that the model explains about 30.3% of the variance in HIV knowledge, with a -2 Log likelihood value of 1136.055, a Cox and Snell R^2 of 0.224, and a Nagelkerke R^2 of 0.303.

Disability (Main study variable)

For people with disabilities, the coefficient B is 0.786 and the Exp (B) is 2.194 ($p<0.001$). This indicates that people with disabilities are 2.194 times more likely to have low HIV knowledge compared to the control population. This variable is statistically significant, showing a strong association between disability status and low HIV knowledge.

Control variables

Major control variables are:

Gender: The coefficient B is -0.665 and the Exp (B) is 0.514 ($p<0.001$). This means that women are about half as likely to have low knowledge compared to men. This variable is statistically significant, suggesting that gender plays an important role in HIV knowledge.

Age: The coefficient B is 1.081 and the Exp (B) is 2.949 ($p<0.001$). Adolescents and young people are 2.949 times more likely to have low HIV knowledge compared to adults. This variable is highly significant, indicating that younger people are particularly vulnerable in terms of HIV knowledge.

Education level: For those without education, the coefficient B is 1.405 and the Exp (B) is 4.077 ($p< 0.001$). For primary education, the coefficient B is 0.914 and the Exp (B) is 2.495 ($p<0.001$). Individuals without education or with only primary education are significantly more likely to have low HIV knowledge compared to those with secondary education or higher. Education appears to play an important role in the acquisition of HIV knowledge.

Economic activity: For individuals without economic activity, the coefficient B is 0.673 and the Exp (B) is 1.959 ($p<0.001$). This shows that these individuals are almost twice as likely to have low HIV knowledge compared to salaried or self-employed individuals. This variable is statistically significant, highlighting the importance of employment in the dissemination of HIV knowledge.

Social network: The coefficient B is 0.069 and the Exp (B) is 1.072 ($p=0.658$). This variable is not statistically significant, suggesting that the social network does not have a significant impact on HIV knowledge in this study.

Social participation: The coefficient B is 0.400 and the Exp (B) is 1.492 ($p=0.053$). This variable is marginally significant. Those with partial social participation are about 1.5 times more likely to have low HIV knowledge, indicating a potential link between social participation and HIV knowledge.

Living standards: The coefficients for the living standards quintiles are not significant, suggesting that living standards do not have a major impact on HIV knowledge in this model.

DISCUSSION

The primary objective of this article was to assess HIV knowledge acquisition among people with disabilities in Bujumbura and to identify the sociodemographic factors associated with this knowledge. The results clearly demonstrated that the levels of HIV knowledge among this population were significantly lower than those observed among people without disability, highlighting a glaring disparity in access to critical information about this disease. Furthermore, the analysis revealed that variables such as age, education level, and economic activity play an important role in the variation of HIV knowledge levels. These results corroborate other similar studies.

Integrating these results into existing theoretical frameworks, such as Bandura's self-efficacy theory and health behavior theory, it becomes clear that improving access to HIV information is essential to enhance the self-efficacy of people with disabilities and promote effective preventive behaviors [6,10].

The low acquisition of HIV knowledge among people with disabilities has significant implications for the United Nations' goal of eliminating HIV by 2030. This vulnerable population, often marginalized and facing multiple barriers, encounters increased challenges in accessing HIV information. Without adequate knowledge, people with disabilities are at a higher risk of HIV infection, compromising not only their individual health but also global efforts to reduce the prevalence of the disease. Neglecting these marginalized populations risks leaving pockets

of infection that can become incubators for new epidemics, posing serious threats to global public health. The persistence of this disparity also hinders the achievement of the goal of reducing new infections and HIV-related mortality. To achieve the United Nations Sustainable Development Goals, it is imperative to invest in inclusive and accessible educational programs that specifically address the needs of people with disabilities, thereby enhancing their capacity to protect themselves against HIV and contributing to global progress toward eliminating this disease by 2030.

The article's findings highlight a concerning reality: despite more than 40 yrs of global response to HIV, prevention programs remain largely inadequate in meeting the specific needs of people with disabilities. This inadequate inclusion significantly compromises the effectiveness of HIV control strategies. The data reveal that people with disabilities face significant barriers in accessing HIV information.

CONCLUSION

The results of this study underscore the urgent need for inclusive public policies aimed at improving access to HIV information for people with disabilities in Bujumbura. It is clearly demonstrated that the levels of HIV knowledge among this population are significantly lower than those without disability, revealing a glaring disparity in access to important information about this disease. Variables such as age, education level and economic activity are identified as major determinants of these differences. These findings call for an adaptation of awareness programs and educational policies to integrate accessible formats tailored to various types of disabilities. Policymakers are encouraged to invest in the training of healthcare professionals and explicitly integrate the needs of people with disabilities into national public health strategies. Failing to address these specific needs risks maintaining pockets of HIV transmission within already marginalized populations, thereby compromising global efforts to eliminate this disease by 2030.

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