Assessment Of HIV-Related Knowledge And Risk Behaviors Among High School Students At A Public School In Brazzaville

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Abstract— The objective of this study of high school students in Brazzaville was to assess knowledge, attitudes, and practices related to HIV/AIDS among high school students in the Republic of the Congo. The study setting that enabled us to conduct this study was Lycée Pierre Savorgnan De Brazza B. This was a cross-sectional, descriptive study of 173 male and female high school students conducted from February 3 to 5, 2026, following an HIV/AIDS awareness session for the students. Sampling was random probability-based, and statistical analyses

were performed using R software. The age range of the study population was 15 to 26 years, with a mean age of 18.7 ± 1.6 years. We noted a predominance of females, accounting for 66.5%. The majority of the population had heard of HIV (99.4%), acknowledged that HIV is a virus that attacks the immune system (65.9%), and the most commonly reported mode of transmission was unprotected sexual intercourse at 44%. The results also revealed a low rate of HIV testing at 9.3%. 93.1% of the students were sexually active, and 75.8% of them used condoms during sexual intercourse. In conclusion, we can say that this study showed that high school students had a good level of knowledge about HIV, but that gaps persist regarding modes of transmission and cure, reflecting an incomplete understanding that needs to be improved through the organization of awareness programs at the high school level.

Keywords— Assessment of HIV, Knowledge, Student, Brazzaville

I. INTRODUCTION (*Heading 1*)

Discovered in 1983, the Human Immunodeficiency Virus (HIV) affects approximately 40 million people worldwide. While there is currently no cure that can permanently eliminate the virus, effective antiretroviral treatments can halt the progression of the disease and reduce its transmissibility. Currently, the only way to protect oneself is through the use of protective measures and screening [1].

Globally, despite the efforts of the World Health Organization, HIV remains a major public health problem, having caused the deaths of some 44.1 million people to date. Transmission continues in every country in the world [2]. In 2024, approximately 630,000 people died from HIV-related causes, and 1.5 million people became infected with HIV [2].

In Africa, the number of people living with HIV/AIDS was estimated at 25.3 million, of whom 19.5 million had access to treatment, and there were 460,000 HIV-related deaths in 2020 [2].

The literature reports that young people remain vulnerable to this pandemic. Thus, despite progress made over the past 10 years—including a 46% decline in new HIV infections among young people (ages 15–24)—the world continues to lag behind in achieving the goals set for young people [3].

Although numerous studies have been conducted in schools across the African continent, we note a scarcity of studies on the same population in the Republic of the Congo [4–6]. Hence, we decided to conduct this study among a population of high school students to assess knowledge, attitudes, and practices related to HIV/AIDS among high school students in the Republic of the Congo, to identify the determinants of risky behaviors, and to propose appropriate prevention and health education interventions.

II. Materials and Methods

2.1. Study Design and Timeframe

This was a descriptive, cross-sectional study conducted from February 3 to 5, 2026, following an HIV/AIDS awareness session for the students.

2.2. Study Population

The study population consisted of students at Lycée Pierre Savorgnan de Brazza B who agreed to participate in the study by providing informed consent.

2.3. Inclusion Criteria

Students regularly enrolled at the high school, present at the school on the day of the survey, and consenting to participate in the study freely and voluntarily.

2.4. Exclusion Criteria

Students who were unable to answer the questions, as well as minors whose parents or legal guardians had refused to provide informed consent for their participation in the study.

2.5. Study Sample

This was a random probability sampling, as these students were eligible on a rolling basis without randomization after obtaining their informed consent. In total, 173 students were enrolled in this study after obtaining their consent to participate by completing the pre-established, anonymous, and open-ended survey form.

2.6. Methodology

After obtaining authorization from the Ministry of Education (No. 409/MEPPSA-CAB), we subsequently obtained permission from the Principal of Lycée Pierre Savorgnan de Brazza B to access the room designated for HIV awareness sessions with the students. However, consent forms had been distributed to the minor students to be forwarded to their parents and/or guardians two days before our visit to the room used for the awareness session. The teaching staff was informed of the rationale for this study and, together with the researchers, participated in raising awareness among the students. After raising awareness and obtaining consent from the students, the survey forms were distributed to the students for a CAP study.

2.6.1. Data Collection

Data were collected using a questionnaire designed for this purpose. Information on age, gender, grade level, knowledge of HIV, attitudes toward HIV, perceptions of HIV, and needs related to HIV was gathered. The interviewer made themselves available to the selected students, explaining the study’s objectives and reassuring them about the confidentiality of their responses and the anonymous nature of the questionnaire. Once informed consent was obtained, each student completed the questionnaire away from other students and free from any outside influence. Furthermore, if a student decided to withdraw from the study during the survey, they were considered a non-

respondent. A box was placed in front of each row, and students were asked to place their completed questionnaires inside.

2.6.2. Variables Studied

The variables studied included sociodemographic characteristics (age, gender, grade), knowledge variables related to HIV (modes of transmission, prevention, testing), attitudes toward people living with HIV, and sexual and preventive practices. An overall CAP score was constructed to assess the respondents' overall level.

2.6.3. Statistical Analysis

The collected data were entered into an Excel spreadsheet and analyzed using R Studio software. A descriptive analysis was first conducted to determine the frequencies and proportions of the variables studied. These were presented in the form of tables and figures. We used frequencies for qualitative variables and means and standard deviations for quantitative variables.

III. Results

Our sample consisted of students from the Pierre Savorgnan De Brazza B General Education High School. The mean age was 18.7 ± 1.6 years (range: 15–26). The majority of students in this study were in their senior year (58.4%); 39.9% were in their junior year, and 1.73% were in their sophomore year.

3.1. Distribution by Gender

Female students were the most numerous in our study population, accounting for 66.5% (115 girls), as shown in Figure 1.

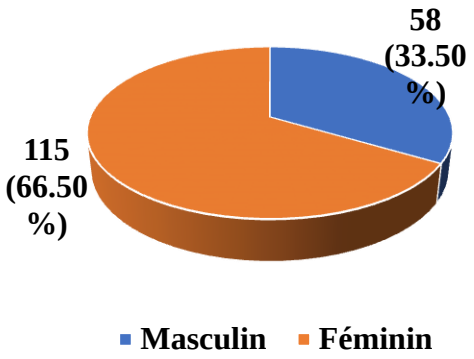


Figure 1: Breakdown of high school students by gender

3.2. Student Awareness of HIV

Regarding student awareness of HIV among our study population, we observed that 99.4% of the sample had already heard of HIV. However, regarding student participation in awareness sessions, 52% of the study population reported not having participated in HIV awareness sessions (see Table I).

Table I. Raising Students' Awareness of HIV

Features	Population	Proportions
	n	%
Have you heard of HIV?		
Yes	172	99.4
No	01	0.6
Organizing HIV Awareness Activities at School		
Yes	80	46.2
No	38	22
Doesn't know	55	31.8
Participation in awareness-raising sessions		
Yes	83	48
No	90	52

3.3. Knowledge of HIV

The majority of high school students knew that HIV was a virus that attacks the immune system at the time of our survey. Most of these students had a thorough understanding of how the virus is transmitted, as Table II shows that, regarding transmission, 44% knew that unprotected sexis a way the virus spreads. 89% responded that condoms are one of the means of protection against HIV.

Table II: High School Students' Knowledge of HIV

Features	**Population (N=173)**	**Proportions (%)**
	n	**%**
HIV is a virus that attacks		
the immune system	114	65.9
the digestive system	02	1.7
the nervous system	24	13.9
I don't know	32	18.5
Ways HIV is transmitted		
Unprotected sex	76	44
Mosquitoes	06	3.47

Sharing food	03	1.7
Contaminated blood	58	33.5
Mother-to-child transmission	30	17.3
Is it possible to be infected without showing any symptoms?		
Yes	124	71.7
No	15	8.7
Don't know	34	19.7
The availability of treatment that enables people living with		
Yes	143	82.7
No	12	6.9
Don't know	18	10.4
Possibility of a permanent cure following treatment		
Yes	35	20.2
No	75	43.4
Don't know	63	36.4
Do condoms protect against HIV?		
Yes	154	89
No	10	5.8
Don't know	09	5.2

Attitudes Toward HIV

The majority of the study's participants had a thorough understanding of HIV and its significant impact on young people (80.2%). 54.3% of these young people saw no problem with sharing a classroom with someone living with HIV in their class. We also noted that 91.3% were opposed to excluding anyone from school due to any HIV-related condition.

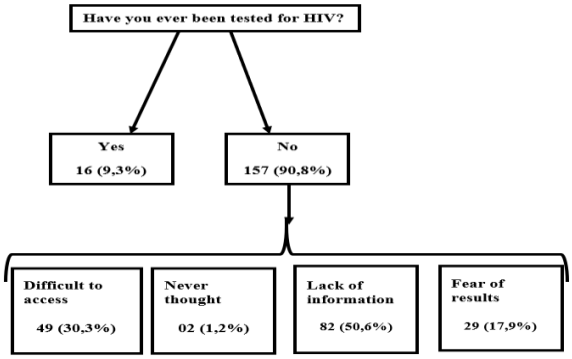
Features	Population (N=173)	Proportions (%)
	n	%
Sharing a classroom with a person living with HIV		
Yes	94	54.3
No	68	39.3
Undecided	11	6.4
Exclusion of a person living with HIV from school		
Yes	15	8.7
No	158	91.3
Acceptance of a friend living with HIV		
Yes	102	59
No	38	22

Don't know	33	19.1
HIV is a major problem for young people		
Yes	138	80.2
No	18	10.5
Don't know	16	9.3

Table III: High School Students' Attitudes Toward HIV

3.5. Practices and Behaviors Related to HIV

3.5.1. Participation in HIV Testing



The majority of the study population had never taken an HIV test (90.8%). The reasons cited were varied, with the most common being a lack of information about testing and where to get tested (50.6%). 17.9% reported being afraid of the results. This explains their refusal to undergo testing, as shown in Figure 2

Figure 2: Participation in HIV screening

3.5.2. Distribution of Students by Sexual Activity

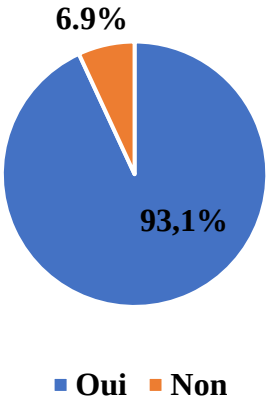


Figure 3: Breakdown of students by sexual act

Figure 3 shows that 93.1% of the study population was sexually active, compared with 6.9% who were not.

3.5.3. Breakdown of sexually active students by condom use

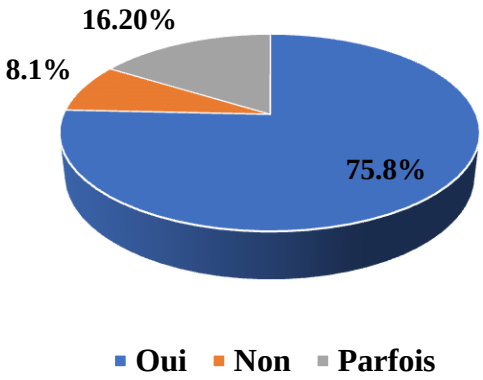


Figure 4: Condom use.

75.8% of the study sample used condoms (Figure 4). 16.2% sometimes used condoms during sexual intercourse. However, 8.1% of the high school students in the study reported never having used a condom during sexual intercourse.

IV. Discussion

The objective of this study, conducted in the Republic of the Congo—specifically in Brazzaville at the Pierre Savorgnan De Brazza High School—was to assess high school students' knowledge, attitudes, and practices regarding HIV/AIDS; to identify the determinants of risky behaviors; and to propose appropriate prevention and health education strategies. The results showed a mean age of 18.7±1.6 years, ranging from 15 to 26 years. Some studies in Africa have reported a lower mean age than ours. Indeed, in a study of high school students in the Republic of the Congo, Ekouya et al. reported a mean age of 16.5±1 years [4]. The same is true for studies conducted by Sangho et al., Cissoko et al. in Mali, and Segbedji et al. in Togo, who reported 17.6 ± 1.8 years, 16.6 ± 1.4 years, and 16.2 years, respectively, in a population of high school students [5,7,8]. In a similar population in Côte d'Ivoire, Yapo-Hien et al. found a mean age of 17.6 years in a study of 417 students [9]. These observed differences are due to the sample sizes of these studies compared to ours. However, our result was identical to that obtained by Ouédraogo et al. in a school population in Ouagadougou, where the mean age was estimated at 18.7 ± 2.1 years[10]. The age range in our study was similar to that reported in the study by Kacou et al (15 to 24 years) in a population of school-aged youth in Côte d'Ivoire[11]. This similarity indicates a certain regional consistency in the demographic structure of school and after-school populations in sub-Saharan Africa.

The population in our study consisted mainly of girls (66.5%). This result is similar to that reported by Ouédraogo et al. in Ouagadougou, although the percentage was lower (55.1%)[12]. In contrast, the study by Sangho et al. reported a male predominance in their sample, with a proportion of 56%[7]. This finding confirms the data collected in the sectoral education strategy of the Republic of the Congo, which reports that, in school settings, the majority of learners are female[13]. We found, as in most studies conducted worldwide, that the vast majority (99.4%) of the population in our study had already heard of HIV. This result confirms the findings of Sangho et al (95.9%), Cissoko et al (68%), Bowassa et al (99.4%), Ouedraogo et al (96.4%), and Kongbo et al in the Democratic Republic of the Congo found in their respective studies on HIV knowledge among young people in school settings[4,7,8,12,14]. This clearly demonstrates that discussing HIV is no longer a taboo in school settings.

44% of the students we surveyed responded that unprotected sexual intercourse was the most common mode of transmission. This finding is consistent with various studies we reviewed

during the literature search for this study [4,5,7,9,12,15].

Regarding the findings on attitudes, the results show an overall positive trend toward reducing stigma against PLHIV, as 54.3% of students stated that they are comfortable sharing a classroom with PLHIV. In comparison with the study by Konaté et al. in Mali, which reported that 18.1% felt fear toward PLHIV, our study demonstrates that raising awareness to promote acceptance of PLHIV remains a task that public authorities must undertake in order to completely eradicate stigma against people living with HIV [16]. Regarding the exclusion of a PLHIV from school due to their condition, 91.3% of students responded that they did not want a PLHIV to be excluded. However, the persistence of some reluctance indicates that additional efforts are essential to strengthen social acceptance.

Although condom use among the study population is relatively high (75.8%), it is not consistent, which constitutes a major risk factor. However, our study shows significantly higher condom use among sexually active youth compared to the Sangho study, where only 54.6% of the study population used condoms during sexual intercourse; the same is true in the study by Segbedji et al., where barely 29.1% of young people used condoms[5,7]. We also noted a high rate of condom use during sexual intercourse in our population compared to the study by Konate et al. in Mali. In that study, only 62.9% of students used condoms during sexual intercourse[16]. These results confirm that knowledge alone is not sufficient to change risky behaviors among young people regarding HIV.

We also observed a low rate of voluntary testing, which is a cause for concern, as only 9.3% of the total population had undergone a screening test, compared to 90.8%. This rate is low compared to the study by Konaté et al. among high school students in Mali, where 25.1% of the study population had undergone voluntary testing[16]. The main barriers identified, notably lack of information (50.6%) and fear of results (17.9%), reflect shortcomings in current awareness-raising strategies. This underscores the need to further promote voluntary screening, emphasizing its confidentiality and accessibility.

Looking ahead, it is essential to strengthen sex education programs in schools, with a focus on correcting misconceptions, promoting screening, and encouraging responsible sexual behavior.

5. Conclusion

The results of this study show that high school students have a good level of knowledge about HIV, consistent with data from the literature in Africa and elsewhere. However, gaps remain, particularly regarding modes of transmission and cure, highlighting that their knowledge is sometimes incomplete or superficial. Strengthening sex education programs, tailored to the sociocultural context, appears essential to improve HIV prevention among young people.

Ethical considerations

This study was conducted in accordance with the ethical guidelines for research involving human subjects in the Congo. Administrative approval was obtained from the Ministry of Preschool, Primary, Secondary, and Literacy Education (No. 409/MEPPSA-CAB). Students, parents, and teaching and administrative staff were informed of the purpose and process of this study in accordance with the Declaration of Helsinki. Confidentiality and anonymity regarding the information provided were guaranteed. All participants gave their consent by signing a consent form.

Artificial Intelligence

The authors state that no generative AI technologies, such as large language models (ChatGPT, COPILOT, etc.) or text-to-image generators, were used in the preparation of this manuscript.

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Conflicts of Interest

The authors declare that they have no known financial or non-financial conflicts of interest or personal relationships that could have influenced the work presented in this article.

Availability of Data and Materials

All data underlying the results described in this article have been presented in full in the manuscript.

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