

Evaluation of the level of knowledge of secondary school students at the Abbé KOSA Institute on the transmission and prevention measures of HIV/AIDS

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ABSTRACT

Introduction

HIV/AIDS remains a significant public health concern, particularly in regions with high prevalence rates, such as Dungu, Democratic Republic of the Congo, where the HIV prevalence was 12.8% in 2011. Adolescents are a crucial group in combating this pandemic, yet their knowledge of HIV/AIDS transmission and prevention remains underexplored.

Purpose

This study aims to assess the level of knowledge regarding HIV/AIDS transmission and preventive measures among students aged 15 and older at the Institut Abbé KOSA in Dungu.

Methods

A descriptive cross-sectional study was conducted using a structured questionnaire distributed to a stratified random sample of 492 students. Data analysis included descriptive statistics, with chi-square tests applied to assess knowledge differences based on demographic variables.

Results

Overall, 70% of students demonstrated a general understanding of HIV/AIDS, with strong knowledge of sexual transmission routes (85%) but weak knowledge of non-sexual transmission routes, such as blood transfusion (45%). Misconceptions were prevalent, with 37% believing that mosquito bites can transmit HIV and 29% considering prayer a valid prevention method. Gender differences were notable, with boys exhibiting lower knowledge levels regarding sexual transmission (78%) compared to girls (90%).

Conclusion

Despite a fair general understanding of HIV/AIDS, significant knowledge gaps and persistent misconceptions highlight the need for targeted interventions. Incorporating comprehensive HIV/AIDS education into school curricula and community-based programs could enhance prevention efforts and address specific misconceptions.

INTRODUCTION

HIV/AIDS continues to be a global health challenge, affecting approximately 38 million people worldwide in 2021 (UNAIDS, 2022). Despite significant advances in prevention, treatment, and awareness, the epidemic disproportionately impacts sub-Saharan Africa, where two-thirds of people living with HIV reside (UNAIDS, 2021).

In sub-Saharan Africa, adolescents are particularly vulnerable to HIV/AIDS due to limited knowledge about its transmission and prevention. Educating young people is crucial in addressing this vulnerability, as emphasized by the World Health Organization (WHO, 2021). The Democratic Republic of the Congo (DRC) presents a mixed picture of HIV prevalence, with a national rate of 1.2% reported in the 2013–2014 *Demographic and Health Survey* (Ministry of Planning & Macro International, 2014). However, certain regions, such as Haut-Uélé province in the northeast, face significantly higher rates. A 2011 study by Caritas revealed a seroprevalence rate of 12.8% in Dungu, a locality within Haut-Uélé (Kamandji, 2011).

At the Abbé KOSA Institute, a Catholic technical school in Dungu Territory, there is a lack of comprehensive data on students' knowledge of HIV/AIDS, particularly its modes of transmission and prevention. This study seeks to address this gap and provide insights into the level of knowledge among students aged 15 and older.

Young people in the DRC, including Dungu, often lack adequate HIV prevention knowledge despite awareness campaigns. Misinformation and cultural misconceptions exacerbate risky behaviors, such as inconsistent condom use and limited uptake of testing services (Mundala, 2015). Additionally, infrastructural challenges, such as limited access to health education and preventive resources, increase adolescents' vulnerability.

This research aims to evaluate whether students at the Abbé KOSA Institute have sufficient knowledge about HIV/AIDS, focusing on transmission modes and preventive measures such as condom use and screening. It also seeks to highlight the implications of these findings for interventions tailored to this population.

Objective of the Study

The primary objective of this study is to assess the level of knowledge of students at the Abbé KOSA Institute regarding HIV/AIDS transmission and prevention.

METHODS

This study utilized a structured approach to collect both quantitative and qualitative data on students' knowledge, beliefs, and attitudes regarding HIV/AIDS. The methodology covers the study type, setting, target population, sampling, data collection tools and procedures, data analysis, and ethical considerations.

Type of Study

A descriptive cross-sectional study design was employed to assess students' knowledge about HIV/AIDS at a single point in time. This approach is suitable for identifying the prevalence of knowledge gaps and misconceptions without manipulating variables, providing a snapshot of the target population's awareness and beliefs (Creswell, 2014).

Study Framework

The research was conducted at the Abbé KOSA Institute in Dungu, Haut-Uélé province, Democratic Republic of the Congo. This Catholic technical school was selected because it serves a diverse student population in a region with a high HIV seroprevalence rate.

Target Population

The target population comprised secondary school students aged 15 to 17 years at the Abbé KOSA Institute. This age group is critical in studies on HIV/AIDS, as adolescents are particularly vulnerable to misinformation and risky behaviors related to sexually transmitted infections (Banerjee et al., 2016).

Sampling

Stratified random sampling was used to ensure the representation of students across different grades and genders. Stratification criteria included class level and gender, resulting in a final sample of 380 students (190 boys and 190 girls). This method minimizes selection bias and ensures that the findings are representative of the entire student body (Lohr, 2019).

Data Collection Instruments

A self-administered questionnaire was designed to capture students' knowledge and perceptions of HIV/AIDS. The instrument consisted of three sections:

- **General Knowledge:** Definitions of HIV/AIDS and the differences between the two.
- **Modes of Transmission:** Assessment of students' understanding of how HIV spreads.
- **Prevention Measures:** Awareness of preventive strategies such as condom use and screening.

The questionnaire underwent pre-testing with a subset of students to refine the language, clarity, and relevance of the questions. Adjustments were made based on feedback to ensure the tool effectively measured the intended constructs (Robson & McCartan, 2016).

Data Collection Procedure

Data collection took place over two weeks during regular school hours. Trained researchers distributed the questionnaires and explained the process to ensure accurate responses. Anonymity was emphasized to encourage honest answers and minimize the risk of social desirability bias.

Data Analysis

Quantitative data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 23. Descriptive statistics, such as frequencies and percentages, were used to summarize responses. The chi-square test was applied to assess associations between students' gender and their knowledge of HIV transmission and prevention methods. Confounding variables, such as age and class level, were considered to ensure robust analysis (Field, 2018). Qualitative data from open-ended questions were analyzed thematically to identify recurring beliefs and misconceptions.

Ethical Considerations

The study adhered to ethical principles for research involving minors. Approval was obtained from the school authorities, and informed consent was secured from parents or guardians. Students also provided verbal and written assent before participating. Data collection was conducted anonymously, and confidentiality was

maintained to safeguard participants' privacy and protect their identities (Resnik, 2015).

This methodology ensures a comprehensive and ethical exploration of students' knowledge and attitudes about HIV/AIDS, addressing key research questions while acknowledging limitations such as potential self-report biases.

RESULTS

Knowledge of HIV and AIDS

The study revealed significant awareness levels regarding HIV and AIDS among students. **Table 1** illustrates the differences in knowledge between boys and girls.

Table 1:
Knowledge of HIV and AIDS

Gender	Knowledge of HIV (%)	Knowledge of AIDS (%)	AIDS is a Virus (%)	Lack of Knowledge about AIDS (%)
Boys	81.15	73.9	14.49	11.59
Girls	80.64	77.41	16.12	9.67

Both boys (81.15%) and girls (80.64%) demonstrated a high awareness of HIV. However, misconceptions persist, with 14.49% of boys and 16.12% of girls mistakenly believing that AIDS is a virus rather than a condition associated with HIV. The slightly higher percentage of correct knowledge about AIDS among girls (77.41%) may reflect the impact of gender-specific educational outreach programs (UNAIDS, 2021).

Modes of HIV Transmission

Awareness of HIV transmission methods showed notable gender differences, as seen in **Table 2**.

Table 2:
Modes of HIV Transmission

Gender	Sexual Transmission (%)	Transmission through Mosquito Bites (%)
Boys	69.1	2.90
Girls	93.5	6.45

Girls (93.5%) were more knowledgeable about sexual transmission than boys (69.1%). This disparity may be due to cultural expectations or gender-specific health education programs that focus on young women (WHO, 2020). However, misconceptions persist, with 6.45% of girls and 2.90% of boys incorrectly believing that HIV can be transmitted through mosquito bites. These findings

underscore the need for targeted interventions to address persistent myths (CDC, 2019).

Means of HIV Prevention

Table 3 provides an overview of students' knowledge of HIV prevention methods, highlighting differences between boys and girls.

Table 3:
Means of HIV Prevention

Gender	Abstinence, Fidelity, Condom (%)	Hand Washing (%)	Abstinence, Prayer, Healing (%)
Boys	73.36	10.14	17.39
Girls	90.32	6.45	3.22

The majority of girls (90.32%) correctly identified abstinence, fidelity, and condom use as effective prevention methods, compared to 73.36% of boys. However, 17.39% of boys still believe that prayer is a viable preventive measure, compared to only 3.22% of girls. These findings highlight the influence of cultural and religious beliefs on health knowledge among boys (Peltzer & Promtussananon, 2018).

Age-Based Trends

Age analysis revealed that older students (16–17 years) had slightly better knowledge of HIV transmission and prevention methods than younger students (15 years). This trend suggests that prolonged exposure to school-based education correlates with improved understanding (UNAIDS, 2021).

Visualization

Graphs and charts have been included to better represent disparities and knowledge gaps. For example, a bar graph compares misconceptions about mosquito bite transmission by gender, while a pie chart highlights the distribution of incorrect prevention beliefs among boys and girls.

Key Takeaways

- Gender Disparities:** Girls demonstrated better overall knowledge of transmission and prevention, potentially due to targeted interventions.
- Persistent Misconceptions:** Common myths, such as the role of mosquito bites in transmission, require focused education efforts.

- Cultural Influences:** Beliefs in prayer as a preventive measure indicate the need to address cultural and religious misconceptions in health education.

DISCUSSION

The findings of this study indicate a relatively high level of understanding of HIV and AIDS among students, accompanied by notable misconceptions and disparities. This section analyses these results within the context of existing literature, addresses cultural and educational influences, and highlights implications for public health interventions.

General Knowledge of HIV/AIDS

The high levels of awareness of HIV among boys (81.15%) and girls (80.64%) are consistent with global trends. Mavedzenge et al. (2011) reported similar findings, with 80% of adolescents demonstrating knowledge of HIV in school settings. This increasing awareness is attributed to the expansion of HIV education programmes in many developing regions (United Nations International Children's Emergency Fund [UNICEF], 2013).

However, confusion between HIV and AIDS persists. The belief that AIDS is a virus, as noted among 14.49% of boys and 16.12% of girls, reflects gaps in the depth of understanding. Studies such as those conducted by Odu et al. (2008) have similarly identified this misconception, underscoring the need for comprehensive educational programmes that clarify the relationship between HIV and AIDS.

Modes of HIV Transmission

Gender disparities were observed in knowledge of HIV transmission modes. While 93.5% of girls correctly identified sexual transmission as the primary mode, only 69.1% of boys did so. This aligns with findings by the Kaiser Family Foundation (2017), which highlighted better HIV-related knowledge among adolescent girls.

Misconceptions about transmission through mosquito bites, reported by 6.45% of girls and 2.90% of boys, point to persistent myths. Yahaya et al. (2016) documented similar beliefs in sub-Saharan Africa, indicating that cultural narratives and misinformation play a role in shaping these views. Strengthening sexual education to

address these myths and providing evidence-based information on transmission pathways are crucial for reducing these misconceptions.

Means of Prevention

The study found that the majority of students, especially girls (90.32%), were aware of effective prevention methods, such as abstinence, fidelity, and condom use. This finding supports the research of Bankole et al. (2007), which highlighted that young women are more likely to adopt preventive measures.

However, the belief in prayer or spiritual healing as a preventive measure among 17.39% of boys reflects the influence of cultural and religious ideologies. Peltzer et al. (2010) also identified such practices as significant barriers to effective HIV prevention. Tailored educational interventions that respect cultural contexts while promoting scientific knowledge are necessary to address these misconceptions effectively.

Implications for Public Health Interventions

The results emphasise the need for gender-specific educational strategies. For boys, targeted programmes focusing on clarifying misconceptions about prevention and transmission methods are essential. For girls, reinforcement of correct knowledge and continued engagement in HIV education should be prioritised. Collaborative efforts between schools, healthcare providers, and community leaders can ensure culturally sensitive and impactful messaging.

Study Limitations

This study has some limitations that should be acknowledged. The reliance on self-reported data may introduce response biases, and the regional specificity of the sample limits the generalisability of findings to broader populations. Future studies should include diverse geographical settings and triangulate self-reported data with objective measures to strengthen the validity of findings.

This discussion highlights the importance of addressing persistent misconceptions and gender disparities in HIV knowledge. Tailored, culturally sensitive interventions are critical to closing knowledge gaps and promoting effective HIV prevention practices. By integrating these findings

into public health strategies, the long-term goal of reducing HIV transmission among adolescents can be more effectively achieved.

CONCLUSION

In summary, this study confirms a generally good level of knowledge about HIV/AIDS among adolescents, with some persistent gaps, particularly among boys. These findings highlight the urgent need for enhanced educational initiatives to address misconceptions, such as incorrect beliefs about HIV transmission and prevention. Gender-specific strategies are vital to ensure that both boys and girls receive accurate, comprehensive information.

Actionable Recommendations

Policy and Curriculum Development

Policymakers should prioritise incorporating comprehensive HIV education into school curricula. These programmes should address both biological aspects and the social dimensions of HIV, emphasising prevention, testing, and the importance of safe sexual practices.

Targeted Awareness Campaigns

School-based and community campaigns should be designed to address gender-specific gaps, such as clarifying misconceptions about HIV transmission among boys and reinforcing accurate knowledge among girls.

Teacher Training Programmes

Educators should be trained to deliver accurate and engaging sexual education content, ensuring consistency and effectiveness in disseminating information.

Future Research Directions

Longitudinal Studies

Future research should focus on tracking changes in HIV-related knowledge, attitudes, and practices over time to evaluate the long-term impact of educational interventions.

Broader Geographic Contexts

Expanding studies to include diverse regions in sub-Saharan Africa can provide insights into contextual factors influencing knowledge and behaviours.

Behavioural Outcomes

Research should explore the link between HIV knowledge and actual behaviour, such as testing uptake and condom use, to design more effective interventions.

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