

ORIGINAL

From Misconceptions to Empowerment: The Impact of Training-Based HIV Awareness Programs in Senior High School Education

De los conceptos erróneos al empoderamiento: el impacto de los programas de concientización sobre el VIH basados en la capacitación en la educación secundaria superior

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Cite as: Casidar JA, Nabua EB, Madale VA, Salic-Hairulla MA. From Misconceptions to Empowerment: The Impact of Training-Based HIV Awareness Programs in Senior High School Education. *Seminars in Medical Writing and Education*. 2025; 4:809. <https://doi.org/10.56294/mw2025809>

Submitted: 15-04-2025

Revised: 03-07-2025

Accepted: 15-10-2025

Published: 16-10-2025

Editor: PhD. Prof. Estela Morales Peralta 

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ABSTRACT

Introduction: human immunodeficiency virus (HIV) has remained a global health challenge, with adolescents among the most vulnerable groups. In the Philippines, rising HIV cases among youth highlight the urgency of school-based interventions. Misconceptions, stigma, and risky behaviors persist despite national campaigns, underscoring the need for structured, participatory educational programs.

Method: the study employed a mixed-methods design among 59 Senior High School students from Mat-I National High School, Naawan, Misamis Oriental, during the first quarter of SY 2025-2026. Quantitative data were collected using pretest and posttest knowledge, attitudes, and practices (KAP) questionnaires and analyzed through descriptive statistics and paired t-tests. Qualitative data from open-ended responses were thematically analyzed to capture students' perceptions and experiences of the intervention.

Results: pretest findings showed novice to beginner levels of knowledge, awareness, and practices, with common misconceptions about transmission and prevention. After the training-based intervention, posttest results revealed significant improvements ($p < 0,05$), with most scores reaching intermediate to advanced levels. Students demonstrated increased factual knowledge, supportive attitudes toward people living with HIV, and stronger engagement in safe and responsible behaviors. Thematic analysis highlighted increased awareness, positive perceptions of the training, stigma reduction, behavior change, and a strong demand for more interactive sessions.

Conclusions: the intervention proved effective in enhancing HIV literacy, reducing stigma, and fostering responsible health practices among adolescents. Integrating training-based HIV education into school curricula, reinforced by community partnerships and digital strategies, is recommended to sustain long-term impact and support broader prevention goals.

Keywords: HIV Awareness; Training-Based Intervention; Adolescent Health; Stigma Reduction; Stigma Reduction.

RESUMEN

Introducción: el virus de la inmunodeficiencia humana (VIH) sigue siendo un problema de salud mundial, y los adolescentes se encuentran entre los grupos más vulnerables. En Filipinas, el aumento de casos de VIH entre los jóvenes pone de relieve la urgencia de las intervenciones escolares. Persisten los conceptos erróneos, el estigma y las conductas de riesgo a pesar de las campañas nacionales, lo que subraya la necesidad de

programas educativos estructurados y participativos.

Método: el estudio empleó un diseño de métodos mixtos con 59 estudiantes de secundaria del Instituto Nacional Mat-I, Naawan, Misamis Oriental, durante el primer trimestre del año escolar 2025-2026. Los datos cuantitativos se recopilaron mediante cuestionarios de conocimientos, actitudes y prácticas (CAP) pretest y postest, y se analizaron mediante estadística descriptiva y pruebas t pareadas. Los datos cualitativos de las respuestas abiertas se analizaron temáticamente para captar las percepciones y experiencias de los estudiantes respecto a la intervención.

Resultados: los resultados de la prueba previa mostraron niveles de conocimiento, concienciación y prácticas de principiantes a principiantes, con ideas erróneas comunes sobre la transmisión y la prevención. Tras la intervención basada en la capacitación, los resultados de la prueba posterior revelaron mejoras significativas ($p < 0,05$), con la mayoría de las puntuaciones alcanzando niveles intermedios a avanzados. Los estudiantes demostraron un mayor conocimiento factual, actitudes de apoyo hacia las personas con VIH y una mayor participación en comportamientos seguros y responsables. El análisis temático destacó una mayor concienciación, percepciones positivas de la capacitación, reducción del estigma, cambio de comportamiento y una fuerte demanda de sesiones más interactivas.

Conclusiones: la intervención demostró ser eficaz para mejorar la alfabetización sobre el VIH, reducir el estigma y fomentar prácticas de salud responsables entre los adolescentes. Se recomienda integrar la educación sobre el VIH basada en la capacitación en los currículos escolares, reforzada por colaboraciones comunitarias y estrategias digitales, para mantener el impacto a largo plazo y apoyar objetivos de prevención más amplios.

Palabras clave: Concienciación sobre el VIH; Intervención Basada en la Capacitación; Salud Adolescente; Reducción del Estigma; Filipinas

INTRODUCTION

Human immunodeficiency virus (HIV) infection remains one of the most pressing global health challenges of our time, with its impact resonating across continents and communities.⁽¹⁾ Infection with human immunodeficiency virus type 1 (HIV-1) and the subsequent development of acquired immune deficiency syndrome (AIDS) continues to be among the most significant public health crises. Globally, approximately 1,600 new HIV cases are reported every day. More than 95 % of people living with HIV are from developing regions, with Africa alone accounting for nearly 70 % of cases and 90 % of AIDS-related deaths.⁽²⁾

Sexually transmitted infections (STIs) are among the world's most serious health issues, creating medical, social, and economic burdens. Moreover, they are recognized as major entry points for HIV infection.⁽³⁾ Despite ongoing global initiatives, HIV/AIDS remains a critical health concern due to the continuous increase in new cases.

The World Health Organization (WHO) has set ambitious targets: reducing global annual new HIV infections from 1,5 million in 2020 to 370 000 by 2025, and 335 000 by 2030. Achieving these goals requires high-quality, evidence-based, and people-centered interventions, particularly for high-risk and vulnerable populations. Scientifically accurate, culturally sensitive, and comprehensive HIV programs are essential in promoting health and preventing further spread.⁽⁴⁾

In the Philippines, the Philippine National AIDS Council (PNAC), in collaboration with Health Secretary Teodoro J. Herbosa, has intensified its HIV information and communication campaign amid the rising number of cases. Between July and September 2024, the country recorded an average of 50 new daily cases, with 4,595 infections and 459 AIDS-related deaths. Since 1984, cumulative cases have reached 139,662, including 8,327 deaths. Sexual contact remains the dominant mode of transmission (96 %), with the highest prevalence among males who have sex with males. The most affected age groups are 25-34 years (47 %) and 15-24 years (32 %).

Herbosa underscored the “ABCDE” prevention strategy—Abstinence, Be faithful, Correct and consistent Condom use, Don't use drugs, and Educate yourself—and urged Filipinos to make use of free testing and treatment services. PNAC Executive Director Joselito Feliciano also addressed widespread misconceptions, stressing that HIV cannot be transmitted through casual contact.

To encourage youth involvement, PNAC partnered with the Department of the Interior and Local Government (DILG) and the National Youth Council to train Sangguniang Kabataan members through the initiative *Local Youth Leaders Responding to the Philippine HIV Epidemic*. This program aims to empower young leaders with accurate HIV knowledge, provide community-level support, and ensure dedicated funding for grassroots interventions.

Despite free access to HIV testing and antiretroviral treatment (ART), stigma, misinformation, and risky behaviors continue to undermine prevention and management. Misconceptions about transmission, limited access to reliable information, and persistent social stigma exacerbate the vulnerability of at-risk groups. Recognizing these challenges, PNAC and its partner agencies have intensified campaigns to promote comprehensive HIV awareness and youth-led prevention initiatives.

Educating students about HIV is crucial. Adolescence is a formative stage where individuals begin to explore relationships and make independent health decisions. Providing accurate and age-appropriate information on HIV transmission, prevention, and treatment enables young people to make informed choices and avoid risky behaviors. However, misconceptions remain prevalent among Filipino youth, underscoring the urgent need for structured, school-based interventions. Such programs not only raise awareness but also foster empathy, reduce stigma, and cultivate inclusive school communities. As future leaders and advocates, students can play a pivotal role in advancing HIV awareness and contributing to national efforts to curb the epidemic.

Research Objectives

The primary objective of this study is to assess and improve the level of HIV awareness among Senior High School students through the development and implementation of a student-led HIV awareness training program. Specifically, it seeks to:

- Identify the baseline knowledge, attitudes, and practices (KAP) related to HIV among students.
- Design and conduct a training-based intervention on HIV awareness for Senior High School learners.
- Determine the effectiveness of the training-based intervention on dispelling myths and misconceptions about HIV in terms of:
 - a. Knowledge of HIV
 - b. Awareness of HIV
 - c. Attitudes and practices toward HIV

METHOD

Research Design

This study employed a mixed-methods approach, integrating both quantitative and qualitative techniques. The quantitative component involved administering pre-test and post-test assessments of students' knowledge, attitudes, and practices (KAP) related to HIV. The qualitative component explored respondents' perceptions of the training-based intervention through open-ended responses.

Research Locale and Participants

The study was conducted at Mat-I National High School, a public secondary school located in Naawan, Misamis Oriental, Philippines. The school serves students from both urban and rural barangays, providing an ideal setting for assessing diverse levels of health literacy and awareness. The research specifically involved 59 Senior High School students enrolled during the first quarter of School Year 2025-2026. The participants were selected through purposive sampling, as they represented the target group most relevant to the study's objectives—adolescents in the age range of 16 to 19 years, who are within the critical developmental period of acquiring health-related knowledge and forming responsible behaviors. All participants were enrolled in the Academic Track (General Academic Strand and STEM Strand), ensuring that respondents had comparable educational backgrounds. Prior to data collection, permission was obtained from the school head, and informed consent was secured from all participants. The pretest, training intervention, and posttest were conducted within a three-week period—from August 5 to August 23, 2025. Each session lasted approximately 60 to 90 minutes, held during designated class hours to minimize disruption to regular academic activities.

Research Instruments

The study utilized the following instruments

HIV Knowledge, Awareness, Attitudes, and Practices (KAP) Questionnaire (Pretest/Posttest)

This questionnaire measured students' baseline and post-intervention levels of knowledge, awareness, attitudes, and practices regarding HIV. It included Likert-scale and open-ended questions on key areas such as modes of transmission, prevention methods, misconceptions, stigma, willingness to get tested, and safe practices. The tool aimed to evaluate the effectiveness of the intervention and inform future education strategies.

HIV Training-Based Intervention Design.

The structured intervention program sought to enhance Senior High School students' HIV-related knowledge, awareness, attitudes, and preventive practices. It included interactive lectures, multimedia presentations, group activities, and reflection exercises tailored to adolescents' developmental levels. A licensed medical practitioner served as a guest speaker, providing expert insights on HIV transmission, prevention, and treatment while debunking common misconceptions. The training concluded with a poster-making activity to reinforce understanding and advocacy skills.

Perception and Advocacy Questionnaire

This instrument assessed students' perceptions of HIV-related issues, including stigma, social responsibility, and willingness to engage in advocacy and prevention initiatives. Open-ended items captured students' beliefs, attitudes, and commitment to promoting HIV education in their school and community.

Rubric for Validating Questionnaires.

Expert validators used a structured rubric to evaluate the content quality and appropriateness of the research questionnaires. Criteria included clarity of content, wording, logical grouping, data relevance, and adequacy of questions. Validators rated each criterion on a scale from 1 (Strongly Disagree) to 4 (Strongly Agree), with open-ended sections for suggested revisions, additions, or deletions. This process ensured content validity and alignment with the study's objectives.

Statistical Tools and Data Analysis

Quantitative data from pre-tests and post-tests were analyzed using descriptive statistics (mean and standard deviation) to summarize students' KAP levels. To determine the effectiveness of the intervention, an unpaired sample t-test was employed to identify significant differences between pre-test and post-test scores. Qualitative data from open-ended questions were thematically analyzed to capture students' perceptions and experiences of the intervention.

Data Gathering Procedure

Approval to conduct the study was formally obtained from the Office of the School Head of Mat-I National High School, Naawan, Misamis Oriental. After securing authorization, the researcher coordinated with class advisers and subject teachers to identify suitable schedules that would not interfere with regular classroom instruction. Coordination also ensured that the sessions aligned with students' availability and allowed sufficient time for both the administration of instruments and the conduct of the intervention.

Prior to data collection, orientation sessions were held to inform participants about the purpose, scope, and procedures of the study. During this briefing, participants were reminded of their rights to voluntary participation and confidentiality, and each respondent signed an informed consent form.

The data collection process followed three major stages:

1. **Pretest Administration:** validated Knowledge, Awareness, Attitudes, and Practices (KAP) questionnaires were reproduced and distributed to 59 Senior High School students. Clear instructions were explained verbally and displayed on the board. Students were given 30-40 minutes to complete the pretest in a supervised yet non-intrusive environment to ensure honest and independent responses.
2. **Implementation of the Training-Based Intervention:** a structured HIV Awareness Training Program was then conducted over two consecutive days, facilitated by the researcher, a licensed medical practitioner, and designated peer leaders. The sessions lasted approximately 90 minutes each, incorporating interactive lectures, multimedia presentations, and group activities.
3. **Posttest Administration:** one week after the training, the same KAP instrument was re-administered to measure changes in students' knowledge, attitudes, and practices. Participants were allotted 40 minutes to complete the questionnaire under the same conditions as the pretest.

All completed instruments were checked for completeness and accuracy, with invalid or incomplete entries excluded from the final analysis. Data were then tallied, encoded, and analyzed using descriptive statistics and inferential tests (e.g., paired t-test) to determine significant differences between pretest and posttest results.

The entire data collection phase was conducted during the first quarter of School Year 2025-2026, spanning a period of three weeks (August 5-23, 2025). Before deployment, all research instruments underwent expert validation by specialists in health education and research methodology to ensure clarity, content relevance, and reliability. Constructive feedback from the validators led to minor revisions that enhanced the instrument's precision and alignment with the study objectives.

Ethical Considerations

Ethical considerations formed an essential part of this study to ensure the protection and respect of all participants. Prior to the conduct of the study, informed consent was obtained from all respondents, with the assurance that their participation was voluntary and that they could withdraw at any time without consequence. To uphold privacy, confidentiality of the data was strictly maintained in accordance with the Data Protection and Privacy Act, and respondents' identities were kept anonymous throughout the research process. The study also avoided any form of deception or exaggeration regarding its aims and objectives, ensuring that communication with participants remained transparent and honest. Furthermore, potential conflicts of interest, affiliations, and sources of funding were clearly declared to maintain integrity. Lastly, all data were reported accurately,

avoiding misrepresentation or biased presentation of the findings, thereby guaranteeing that the results truly reflected the participants' responses and experiences.

RESULTS

Variable	Category	Frequency (f)	Percentage (%)
Sex	Male	27	45,80
	Female	32	54,20
Age	16 years old	14	23,70
	17 years old	28	47,50
	18 years old	13	22,00
	19 years old	4	6,80
Grade Level	Grade 11	34	57,60
	Grade 12	25	42,40
Academic Strand	STEM	30	50,80
	GAS	29	49,20

As reflected in table 1, the majority of respondents were female (54,2 %), while males comprised 45,8 %, indicating a relatively balanced gender distribution. In terms of age, most participants were 17 years old (47,5 %), followed by 16 years old (23,7 %) and 18 years old (22,0 %), suggesting that the respondents were predominantly mid- to late-adolescents—an age group particularly relevant to HIV education and awareness initiatives.

Regarding grade level, Grade 11 students (57,6 %) slightly outnumbered Grade 12 students (42,4 %), consistent with the school's population structure. The participants were nearly evenly distributed across academic strands, with 50,8 % from the Science, Technology, Engineering, and Mathematics (STEM) strand and 49,2 % from the General Academic Strand (GAS).

Results on the Level of Knowledge, Awareness, Attitudes, and Practices (KAP) Related to HIV Among Students (Pretest)

Item	Statement	Mean Score (1-5)	Scale Interpretation
1	HIV can be transmitted through unprotected sex.	1,49	Strong disagreement / Very low knowledge
2	You can catch HIV by sharing food or drinks with a person who has it.	3,44	Agreement / Misconception (High belief in false information)
3	HIV can be transmitted through mosquito bites.	3,47	Agreement / Misconception (High belief in false information)
4	Using condoms can reduce the risk of HIV infection.	1,59	Strong disagreement / Very low knowledge
5	There is no cure for HIV, but treatment can help people live long, healthy lives.	1,46	Strong disagreement / Very low knowledge
6	You can get HIV from toilet seats.	3,58	Agreement / Misconception (High belief in false information)
7	HIV is only a concern for certain groups of people.	3,58	Agreement / Misconception (High belief in false information)
8	A person can look healthy and still have HIV.	1,58	Strong disagreement / Very low knowledge
9	HIV can be prevented through abstinence, fidelity, and proper use of protection.	1,46	Strong disagreement / Very low knowledge
10	HIV can be transmitted through blood transfusions with unscreened blood.	1,54	Strong disagreement / Very low knowledge
Overall Mean (SD)		2,32 (± 0,91)	Strong disagreement / Very low knowledge overall
Note: Legend: 1 = Strong disagreement / Very low knowledge, 2 = Disagreement / Low knowledge, 3 = Neutral / Uncertain, 4 = Agreement / High knowledge, 5 = Strong agreement / Very high knowledge			

Table 2 presents the pretest mean scores for students' knowledge on HIV transmission and prevention, indicating a low level of factual understanding ($M = 2,32$, $SD = 0,91$). Most respondents held misconceptions about HIV transmission routes and preventive measures. A paired-samples t-test comparing pretest (table 2) and posttest (table 6) results revealed a significant increase in knowledge, $t(58) = 12,47$, $p < 0,001$, $d = 1,62$, signifying a large effect size. This indicates that the training program produced a substantial and meaningful improvement in students' knowledge of HIV-related concepts.

Table 3. Level of Self-Assessed Awareness on HIV

Item	Statement	Mean Score (1-5)	Scale Interpretation
1	I am aware of how HIV is transmitted.	1,27	Strong disagreement / Very low awareness
2	I am aware that HIV cannot be spread through casual contact like hugging or sharing food.	1,37	Strong disagreement / Very low awareness
3	I am aware of how to protect myself from HIV.	1,29	Strong disagreement / Very low awareness
4	I am aware of the difference between HIV and AIDS.	1,29	Strong disagreement / Very low awareness
5	I am aware that people living with HIV can live normal and productive lives with treatment.	1,32	Strong disagreement / Very low awareness
6	I am aware of the importance of getting tested for HIV.	1,34	Strong disagreement / Very low awareness
7	I am aware that stigma and discrimination against people with HIV is harmful and unjust.	1,29	Strong disagreement / Very low awareness
8	I am aware of where to access HIV-related support and services in my community.	1,32	Strong disagreement / Very low awareness
9	I am aware that myths and misinformation about HIV are still common.	1,36	Strong disagreement / Very low awareness
10	I am aware of my role in educating others and promoting HIV awareness.	1,29	Strong disagreement / Very low awareness
Overall Mean (SD)		1,31 ($\pm$ 0,08)	Strong disagreement / Very low awareness overall
Note: Legend: 1 = Strong disagreement / Very low knowledge, 2 = Disagreement / Low knowledge, 3 = Neutral / Uncertain, 4 = Agreement / High knowledge, 5 = Strong agreement / Very high knowledge			

Table 4. Level of Attitudes Toward HIV Awareness

Item	Statement	Mean Score (1-5)	Scale Interpretation
1	I believe people living with HIV should not be discriminated against.	1,32	Strong disagreement / Very low positive attitude
2	I feel comfortable talking about HIV prevention with my peers.	1,31	Strong disagreement / Very low positive attitude
3	I would support a classmate who is HIV-positive.	1,37	Strong disagreement / Very low positive attitude
4	I believe that knowing the truth about HIV can save lives.	1,25	Strong disagreement / Very low positive attitude
5	I believe everyone should be tested for HIV at least once.	1,27	Strong disagreement / Very low positive attitude
Overall Mean (SD)		1,30 ($\pm$ 0,04)	Strong disagreement / Very low positive attitude overall
Note: Legend: 1 = Strong disagreement / Very low knowledge, 2 = Disagreement / Low knowledge, 3 = Neutral / Uncertain, 4 = Agreement / High knowledge, 5 = Strong agreement / Very high knowledge			

As shown in table 3, students' self-assessed awareness of HIV prior to the intervention was very low ($M = 1,31$, $SD = 0,08$). Respondents expressed limited understanding of HIV-related information, preventive actions, and available community support. When compared with the posttest results in table 7, a statistically significant improvement was observed, $t(58) = 15,02$, $p < 0,001$, $d = 1,95$, reflecting a large and meaningful increase in perceived awareness. This finding demonstrates that the intervention effectively enhanced not only factual knowledge but also the students' confidence and self-perception of HIV understanding.

Table 4 shows the pretest attitudes of students toward HIV, with a very low positive attitude ($M = 1,30$, $SD = 0,04$). Respondents displayed hesitation and discomfort in discussing HIV-related issues or interacting

with people living with HIV. A comparison between pretest (table 4) and posttest (table 8) results indicated a significant improvement, $t(58) = 14,18$, $p < 0,001$, $d = 1,84$, suggesting a large and meaningful attitudinal change. Students exhibited more empathetic, open, and inclusive perspectives following the intervention.

Table 5. Level of Practices on Responsible and Informed HIV Behaviors

Item	Statement	Mean Score (1-5)	Scale Interpretation
1	I avoid spreading myths about HIV.	1,5	Strong disagreement / Very low engagement in responsible practices
2	I practice respectful language when discussing HIV or people living with HIV.	1,53	Strong disagreement / Very low engagement in responsible practices
3	I seek accurate information about HIV from reliable sources.	1,6	Strong disagreement / Very low engagement in responsible practices
4	I encourage others to get tested or attend HIV awareness seminars.	1,54	Strong disagreement / Very low engagement in responsible practices
5	I make safe choices in situations that involve potential HIV risk (e.g., sharing sharp objects, unprotected sex).	1,5	Strong disagreement / Very low engagement in responsible practices
Overall Mean (SD)		1,53 ($\pm$ 0,04)	Strong disagreement / Very low engagement in responsible practices overall
Note: Legend: 1 = Strong disagreement / Very low knowledge, 2 = Disagreement / Low knowledge, 3 = Neutral / Uncertain, 4 = Agreement / High knowledge, 5 = Strong agreement / Very high knowledge			

In table 5, pretest mean scores show minimal engagement in responsible HIV-related behaviors ($M = 1,53$, $SD = 0,04$). Students rarely practiced or promoted preventive and respectful actions related to HIV. Posttest comparisons demonstrated a significant behavioral improvement, $t(58) = 13,75$, $p < 0,001$, $d = 1,71$, which represents a large practical effect. This indicates that the training effectively translated students' knowledge and attitudes into observable, health-promoting behaviors.

Training-based intervention Design on HIV awareness from Senior High School



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TRAINING DESIGN

Title:

Enhancing HIV Awareness among Senior High School Students through Training-Based Interventions" under the theme "Understanding HIV: A Step toward a Safer

I. RATIONALE

Despite ongoing efforts to address the spread of HIV, stigma, misconceptions, and limited awareness remain prevalent among youth, particularly senior high school students. Adolescents are in a critical stage of development where their knowledge, attitudes, and behaviors toward health are being shaped. However, many still lack accurate information about HIV transmission, prevention, and the importance of testing, which puts them at greater risk of unsafe practices and discrimination against people living with HIV. This study is grounded in the belief that education is a powerful tool for prevention. By implementing **training-based interventions**, students are provided with structured, interactive, and age-appropriate learning experiences that go beyond textbook knowledge. These interventions aim to foster not only awareness but also empathy, responsible decision-making, and proactive health behavior. Under the theme "Understanding HIV: A Step toward a Safer Future," this initiative underscores the importance of equipping young individuals with the right information to make informed choices, reduce stigma, and contribute to a healthier, more inclusive society. Ultimately, increasing HIV awareness through targeted training empowers students to become advocates for safe practices, respect, and care within their schools and communities.

II. TRAINING PROPER

A. Objectives

This seminar-workshop is designed to integrate. Specifically,

1. **To enhance students' knowledge and awareness** of HIV, including its transmission, prevention, and treatment.
2. **To promote positive attitudes and reduce stigma** toward people living with HIV through values-based and inclusive education.
3. **To empower students to make informed, responsible decisions** regarding their sexual health and become peer advocates for HIV prevention.

B. Training Methodologies

Lecture and Workshop

III. TRAINING INFORMATION

A. Title:

Enhancing HIV Awareness among Senior High School Students through Training-Based Interventions" under the theme "Understanding HIV: A Step toward a Safer

B. Venue: MAT-I(NAAWAN) NATIONAL HIGH SCHOOL

C. Proponent: Jamaliah A. Casidar

D. Schedule: 1 DAY

E. Participants: Senior High School Students

F. Total No. of Participants: 2 Resource speakers
59 Senior High School Students

G. Equipment:

- Whiteboard/flip chart, markers, and multimedia equipment for presentations
- Laptops or tablets for hands-on activities and exploration of digital tools

VI. TRAINING CURRICULUM

TOPIC	OBJECTIVES	ACTIVITIES	FOCAL PERSONS	TIME FRAME	HIV	To enhance students' knowledge and awareness of HIV, including its transmission, prevention, and treatment.	Lecture-discussion: "HIV 101" Interactive Q&A session Visual presentations (infographics/videos)	Medical Practitioner Science Teacher	1 Hour
HIV	To enhance students' knowledge and awareness of HIV, including its transmission, prevention, and treatment.	Lecture-discussion: "HIV 101" Interactive Q&A session Visual presentations (infographics/videos)	Medical Practitioner Science Teacher	1 Hour		To promote positive attitudes and reduce stigma toward people living with HIV through values-based and inclusive education.	Testimonial sharing by an HIV advocate Group reflection and open forum empathy and support	Medical Practitioner Science Teacher	1 Hour
	To promote positive attitudes and reduce stigma toward people living with HIV through values-based and inclusive education.	Testimonial sharing by an HIV advocate Group reflection and open forum empathy and support	Medical Practitioner Science Teacher	1 Hour		To empower students to make informed, responsible decisions regarding their sexual health and become peer advocates for HIV prevention.	Workshop: "Be a Peer Educator" Creation of student-led HIV poster info campaigns Reflection and feedback	Medical Practitioner Science Teacher	1.5 Hours
	To empower students to make informed, responsible decisions regarding their sexual health and become peer advocates for HIV prevention.	Workshop: "Be a Peer Educator" Creation of student-led HIV poster info campaigns Reflection and feedback	Medical Practitioner Science Teacher	1.5 Hours					

Figure 1. HIV Awareness Training-based Intervention Design

It presents a structured educational program called "Enhancing HIV Awareness Among Senior High School Students through Training-Based Interventions" under the theme "Understanding HIV: A Step Toward a Safer Future." This training design aims to address the low levels of knowledge, awareness, and positive attitudes regarding HIV among senior high school students. The document begins with a clear introduction and rationale, highlighting the urgency of HIV education among adolescents and emphasizing the importance of proactive, school-based interventions.

Three core objectives are outlined in the design: first, to improve students' understanding of HIV transmission, prevention, and treatment; second, to promote positive attitudes and reduce stigma toward people living with HIV; and third, to empower students to make responsible decisions and become peer advocates for awareness and prevention. These objectives are reflected in a well-structured training curriculum that includes interactive lectures, testimonials, group workshops, and creative advocacy tasks such as poster-making and campaign development. Each activity is assigned specific focal persons such as medical practitioners, teachers, and student leaders, along with designated time frames.

The Monitoring and Evaluation (M&E) section outlines how the effectiveness of the training will be measured through pre- and post-tests, learning style assessments, participant feedback, and observation tools. It emphasizes continuous assessment, personalized feedback, and targeted interventions to support diverse learning needs. The design also recognizes the importance of metacognitive development, inclusive teaching practices, and identifying learning barriers that may hinder student engagement. Overall, the document provides a comprehensive, learner-centered approach to HIV education that is grounded in both scientific knowledge and values formation, aiming to create informed, empathetic, and health-conscious youth advocates.

Results on the Effectiveness of the Training-Based Intervention on Students' Knowledge, Awareness, Attitudes, and Practices (Posttest)

Table 6 presents the posttest results, showing a very high level of knowledge ($M = 4.05$, $SD = 0.09$) following the intervention. Students were able to correctly identify accurate information and reject myths. When compared with pretest scores the increase was statistically significant, $t(58) = 12.47$, $p < 0.001$, $d = 1.62$, indicating a large and meaningful effect of the intervention on students' HIV knowledge.

Table 6. Level of Knowledge on HIV Transmission, Prevention, and Misconceptions Among Adolescents (Posttest)

Item	Statement	Mean Score (1-5)	Scale Interpretation
1	HIV can be transmitted through unprotected sex.	4,58	Strong agreement / Very high knowledge
2	You can catch HIV by sharing food or drinks with a person who has it.	1,44	Strong disagreement / Very high knowledge (correct rejection of misconception)
3	HIV can be transmitted through mosquito bites.	1,37	Strong disagreement / Very high knowledge (correct rejection of misconception)

4	Using condoms can reduce the risk of HIV infection.	4,52	Strong agreement / Very high knowledge
5	There is no cure for HIV, but treatment can help people live long, healthy lives.	4,61	Strong agreement / Very high knowledge
6	You can get HIV from toilet seats.	1,41	Strong disagreement / Very high knowledge (correct rejection of misconception)
7	HIV is only a concern for certain groups of people.	1,48	Strong disagreement / Very high knowledge (correct rejection of misconception)
8	A person can look healthy and still have HIV.	4,44	Agreement / High knowledge
9	HIV can be prevented through abstinence, fidelity, and proper use of protection.	4,56	Strong agreement / Very high knowledge
10	HIV can be transmitted through blood transfusions with unscreened blood.	4,47	Agreement / High knowledge
Overall Mean (SD)		4,05 (± 0,09)	Strong agreement / Very high knowledge overall

Note: Legend: 1 = Strong disagreement / Very low knowledge, 2 = Disagreement / Low knowledge, 3 = Neutral / Uncertain, 4 = Agreement / High knowledge, 5 = Strong agreement / Very high knowledge

Table 7. Level of Self-Assessed Awareness on HIV (Posttest)

Item	Statement	Mean Score (1-5)	Scale Interpretation
1	I am aware of how HIV is transmitted.	4,58	Strong agreement / Very high awareness
2	I am aware that HIV cannot be spread through casual contact like hugging or sharing food.	4,47	Agreement / High awareness
3	I am aware of how to protect myself from HIV.	4,52	Strong agreement / Very high awareness
4	I am aware of the difference between HIV and AIDS.	4,43	Agreement / High awareness
5	I am aware that people living with HIV can live normal and productive lives with treatment.	4,49	Agreement / High awareness
6	I am aware of the importance of getting tested for HIV.	4,53	Strong agreement / Very high awareness
7	I am aware that stigma and discrimination against people with HIV are harmful and unjust.	4,61	Strong agreement / Very high awareness
8	I am aware of where to access HIV-related support and services in my community.	4,45	Agreement / High awareness
9	I am aware that myths and misinformation about HIV are still common.	4,46	Agreement / High awareness
10	I am aware of my role in educating others and promoting HIV awareness.	4,54	Strong agreement / Very high awareness
Overall Mean (SD)		4,51 (± 0,06)	Strong agreement / Very high awareness overall

Note: Legend: 1 = Strong disagreement / Very low knowledge, 2 = Disagreement / Low knowledge, 3 = Neutral / Uncertain, 4 = Agreement / High knowledge, 5 = Strong agreement / Very high knowledge

Table 8. Level of Attitudes Toward HIV Awareness (Posttest)

Item	Statement	Mean Score (1-5)	Scale Interpretation
1	I believe people living with HIV should not be discriminated against.	4,56	Strong agreement / Very high positive attitude
2	I feel comfortable talking about HIV prevention with my peers.	4,52	Strong agreement / Very high positive attitude
3	I would support a classmate who is HIV-positive.	4,58	Strong agreement / Very high positive attitude
4	I believe that knowing the truth about HIV can save lives.	4,63	Strong agreement / Very high positive attitude
5	I believe everyone should be tested for HIV at least once.	4,6	Strong agreement / Very high positive attitude
Overall Mean (SD)		4,58 (± 0,04)	Strong agreement / Very high positive attitude overall

Note: Legend: 1 = Strong disagreement / Very low knowledge, 2 = Disagreement / Low knowledge, 3 = Neutral / Uncertain, 4 = Agreement / High knowledge, 5 = Strong agreement / Very high knowledge

Table 8 reveals that after the intervention, students' attitudes toward HIV reached a very high positive level ($M = 4,58$, $SD = 0,04$). Participants expressed strong support for inclusivity, compassion, and open dialogue. A paired-samples t-test comparing pretest (table 4) and posttest results showed a significant increase, $t(58) = 14,18$, $p < 0,001$, $d = 1,84$, indicating a large and meaningful attitudinal shift toward acceptance and empathy.

Table 9. Level of Practices on Responsible and Informed HIV Behaviors (Posttest)

Item	Statement	Mean Score (1-5)	Scale Interpretation
1	I avoid spreading myths about HIV.	4,48	Strong agreement / Very high engagement in responsible practices
2	I practice respectful language when discussing HIV or people living with HIV.	4,52	Strong agreement / Very high engagement in responsible practices
3	I seek accurate information about HIV from reliable sources.	4,44	Agreement / High engagement in responsible practices
4	I encourage others to get tested or attend HIV awareness seminars.	4,41	Agreement / High engagement in responsible practices
5	I make safe choices in situations that involve potential HIV risk (e.g., sharing sharp objects, unprotected sex).	4,5	Strong agreement / Very high engagement in responsible practices
Overall Mean (SD)		4,47 ($\pm 0,05$)	Strong agreement / Very high engagement in responsible practices overall

Note: Legend: 1 = Strong disagreement / Very low knowledge, 2 = Disagreement / Low knowledge, 3 = Neutral / Uncertain, 4 = Agreement / High knowledge, 5 = Strong agreement / Very high knowledge

Table 9 displays posttest scores indicating very high engagement in responsible HIV practices ($M = 4,47$, $SD = 0,05$). Students reported consistent adoption of safe, respectful, and proactive HIV-related behaviors. Comparing pretest (table 5) and posttest results revealed a statistically significant improvement, $t(58) = 13,75$, $p < 0,001$, $d = 1,71$, confirming a large and meaningful behavioral effect. This demonstrates that the intervention successfully transformed knowledge and attitudes into real-world responsible practices.

Results on the Pretest and Posttest Score on HIV Training-based Intervention

	N	Mean	Std. Deviation	Std. Error Mean
Pretest	4	1.6178	.47940	.23970
Posttest	4	3.5325	.11468	.05734

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Pretest	6.749	3	.007	1.61775	.8549	2.3806
Posttest	61.604	3	.000	3.53250	3.3500	3.7150

Figure 2. Results on the Pretest and Posttest Score

The figure presents the results of a paired-sample t-test comparing the pretest and posttest scores. The t-value for the pretest is 6,749, and the p-value is 0,007, which is below the significance level of 0,05. This indicates that there is a statistically significant difference between the pretest and posttest scores. The mean difference for the pretest is 1,61775, suggesting that the pretest scores are, on average, 1,62 points lower than the posttest scores. The 95 % confidence interval for the pretest mean difference ranges from 0,8549 to 2,3806, which does not include zero, further confirming the significance of the result. For the posttest, the t-value is 61,604, with an extremely low p-value of 0,000, indicating a highly significant difference between the two sets of scores. The mean difference for the posttest is 3,53250, showing that the posttest scores are, on average, 3,53 points higher than the pretest scores. The 95 % confidence interval for the posttest mean difference ranges from 3,3500 to 3,7150, and since this interval is entirely above zero, it reinforces the conclusion that the posttest scores are significantly improved compared to the pretest. In summary, both the pretest and posttest

results reveal statistically significant differences, with the posttest showing a larger improvement in scores. This suggests that the intervention or change between the pretest and posttest had a meaningful and positive effect.

Perception of Senior High School Students on HIV Training-based Intervention

The responses of senior high school students to the HIV training-based intervention were analyzed thematically to understand their perceptions and experiences. Five major themes emerged from the analysis: Increased Awareness and Knowledge, Positive Attitude Towards the Training, Change in Behavior and Perspective, Stigma Reduction and Empathy, and Suggestions for Improvement. Each theme was supported by specific codes that captured the core ideas expressed by the participants, accompanied by actual utterances in Bisaya that reflected their authentic voices.

Under the theme Increased Awareness and Knowledge, students expressed that they gained more information and a deeper understanding of HIV. For instance, one student shared, “Mas nasabtan nako karon unsa gyud ang tinuod nga epekto sa HIV”, indicating a clearer grasp of HIV’s impact. Another stated, “Nakakat-on ko nga importante gyud diay ang paggamit og protection”, which highlights their realization about the importance of preventive measures.

In terms of their Positive Attitude Towards the Training, students described the sessions as engaging and easy to understand. Comments such as “Ganahan ko sa training kay sayon ra sabton ug relatable” and “Lingaw ang seminar, daghan kog natun-an” showed that the approach was effective and appreciated. The presence of a knowledgeable speaker and the inclusion of interactive activities were seen as positive aspects of the program.

A notable outcome was the Change in Behavior and Perspective. Many students mentioned that they became more cautious and responsible after the intervention. As one participant said, “Mas ma-aware nako karon sa akong mga desisyon bahin sa sex”, indicating a shift in decision-making. Others mentioned their intent to avoid risky behaviors and practice safe sex.

Table 10. Summary of Responses

Theme	Code	Utterance (Bisaya)
Increased Awareness and Knowledge	Gained more knowledge	“Mas nasabtan nako karon unsa gyud ang tinuod nga epekto sa HIV.”
	Enhanced understanding	“Wala ko kabalo nga pwede diay ma-transmit ang HIV bisan walay sexual contact.”
	Understood the effects of HIV	“Nakakat-on ko nga importante gyud diay ang paggamit og protection.”
	Realized the importance of early awareness	“Maayo gyud nga sayo pa lang kabalo na mi ani nga topic.”
Positive Attitude Towards the Training	Liked the seminar	“Ganahan ko sa training kay sayon ra sabton ug relatable.”
	Effective speaker	“Maayo ang pag-explain sa doktor, klaro kaayo iyang punto.”
	Easy to understand	“Lingaw ang seminar, daghan kog natun-an.”
	Enjoyed the interactive parts	“Nalingaw ko sa mga activity, dili lang puro lecture.”
Change in Behavior and Perspective	Became more responsible	“Mas ma-aware nako karon sa akong mga desisyon bahin sa sex.”
	Avoiding risky behavior	“Magbantay na gyud ko sa akong health ug sa akong partner.”
	Practicing safe sex	“Dili na ko magpataka og salig, dapat protektado pirmi.”
Stigma Reduction and Empathy	Less judgmental	“Dili na ko parehas sauna nga hadlok ug hilak ra kung makadungog og HIV, kay karon kasabot nako.”
	Knows HIV-positive people shouldn’t be shamed	“Dili na nato dapat uwawan ang mga naay HIV, kinahanglan nato sila sabton.”
	More empathetic to others’ situation	“Ang tawo nga naay HIV, pareho ra nato nga gusto mabuhi normal.”
Suggestions for Improvement	Wants more training sessions	“Mas maayo unta kung daghan pa og ing-ani nga seminar.”
	Include more students	“Unta apilon tanan sections para daghan makabalo.”
	Needs more interactive activities	“Mas nindot kung naay mga role-playing or group activities.”

The training also contributed to Stigma Reduction and Empathy. Students expressed more compassion and less judgment toward people living with HIV. One student reflected, “Dili na nato dapat uwawan ang mga naay HIV, kinahanglan nato sila sabton”, showing a growing sense of understanding and acceptance.

Finally, under Suggestions for Improvement, several students expressed their desire for more sessions and broader participation. Statements like “Mas maayo unta kung daghan pa og ing-ani nga seminar” and “Unta apilon tanan sections para daghan makabalo” suggest that students found the intervention valuable and believe it should be extended to others.

Overall, the students’ responses indicate that the HIV training-based intervention was effective in raising awareness, fostering positive attitudes, encouraging safer behavior, and promoting empathy—all of which are essential in HIV education and prevention.

DISCUSSION

This school-based, training-oriented intervention produced large and statistically significant gains in students’ HIV knowledge, awareness, attitudes, and practices, moving average scores from novice or beginner at baseline to intermediate or advanced after training, with very low p-values ($p < 0.001$) and large effect sizes (Cohen’s $d = 1.62-1.95$), indicating robust and meaningful effects. These improvements—particularly the correction of common myths such as transmission through casual contact, mosquito bites, or toilet seats—demonstrate that interactive, structured education can rapidly strengthen adolescent HIV literacy and reduce stigma in a real-world school setting. Consistent with previous research, the current intervention significantly enhanced students’ knowledge and awareness of HIV, aligning with global studies suggesting that targeted educational programs can improve understanding, correct misconceptions, and increase acceptance of prevention practices among adolescents.⁽⁵⁾

Earlier reviews, however, indicated that most interventions aimed at individuals with low literacy—particularly those focusing solely on medicine-taking instructions or labels—were ineffective because of their passive nature, requiring no active engagement from participants.^(6,7) Research therefore highlights that interactive strategies are more effective in improving health literacy, especially for chronic illnesses such as diabetes and HIV.^(8,9) In contexts like South Africa, where diseases such as HIV and TB are prevalent, interventions that foster understanding and behavior change are particularly crucial.^(10,11)

Data also indicate that the mode of healthcare access influences health literacy. Individuals who visited health centers or private clinics exhibited higher literacy indices compared to those relying on public hospital emergency departments. These disparities underscore the need for targeted interventions to reduce inequalities and enhance healthcare access, particularly for students facing systemic barriers. Factors such as financial constraints during life transitions often limit higher education students’ ability to access and effectively utilize health services.⁽¹²⁾

Improving health literacy through school-based programs has shown positive outcomes. For example, evidence from Australia highlights the benefits of online school interventions in delaying harmful behaviors such as alcohol use among adolescents. However, the long-term effectiveness of such programs, especially in addressing broader mental health and substance use disorders, remains limited, signaling the importance of continuous and adaptive health education strategies within schools to sustain impact.⁽¹³⁾ Health literacy is thus best understood as a multifaceted construct shaped not only by individual competence but also by families, communities, organizational structures, and available resources. These contextual factors strongly influence people’s knowledge, skills, and ability to make informed health decisions.⁽¹⁴⁾

Recent innovations in health education have employed online platforms to deliver comprehensive and personalized HIV-related interventions. These websites provided sexual health information through interactive modules aimed at promoting HIV prevention and raising awareness.⁽¹⁵⁾ Nevertheless, knowledge gaps remain evident; for instance, fewer than half (45.7 %) of adolescents correctly identified unprotected sex as a means of HIV transmission. This aligns with studies in Nigeria and other African nations pointing to limited comprehensive HIV knowledge among adolescents.⁽¹⁶⁾ Such findings highlight the necessity of early and repeated exposure to accurate information, prompting education policymakers to consider integrating fixed HIV prevention modules even at the preadolescent level. Novel strategies such as video blogs (vlogs) are also emerging. Hill and Coker emphasized that although vlogs have primarily been used to encourage physical activity, adapting them for HIV education—especially in communities already engaged with the format—offers promising potential.⁽¹⁷⁾ The World Health Organization similarly underscores the importance of programs tailored to key populations, advocating for evidence-based approaches that address specific needs.⁽¹⁸⁾

A variety of intervention types have been documented in literature⁽¹⁹⁾, with health education consistently demonstrating significant impacts on improving HIV knowledge, diagnosis, treatment outcomes, and reducing stigma.^(20,21) While many programs focus on adolescent HIV prevention or sexual education, few address both simultaneously. Mobile health (mHealth) strategies have been implemented across sub-Saharan Africa to bridge this gap. Interventions such as Uganda’s “iLoveLife” website and South Africa’s text-based ART adherence

program for adolescents living with HIV (APHIV) improved knowledge and behavioral outcomes, though they often remained more didactic than interactive.⁽²²⁾ This suggests the need for more participatory and engaging models of HIV education for youth.

Research further indicates that HIV/AIDS stigma negatively impacts awareness and mental health, reinforcing the notion that knowledge about HIV/AIDS is essential to maintaining psychological well-being. When stigma enters relationships, it diminishes awareness and increases mental health risks. These outcomes align with findings by Jones et al. and Nelsen et al., who emphasized that knowledge and awareness are crucial for achieving optimal health. Conversely, stigma correlates with higher risks of mental illness, while awareness inversely predicts HIV-related stigma.^(23,24,25) Yu et al.⁽²⁶⁾ also highlight the importance of engaging all people living with HIV (PLWH) across the care continuum, regardless of migration status. Barriers such as mental health concerns, stigma, fear, substance use, and lack of social support often hinder consistent treatment, making peer-based services and community-driven interventions essential for enhancing engagement and retention.

Despite encouraging outcomes, existing studies note limitations. Participants in randomized trials may become more aware of HIV care simply due to repeated questioning, which can influence behavior.⁽²⁷⁾ Variations in data documentation practices across different clinical sites may further skew results related to engagement.⁽²⁸⁾ To address these limitations, community involvement has proven crucial. Bhattacharjee et al. and Khan showed that customized, community-specific awareness programs significantly improved testing rates and understanding of prevention strategies, particularly for marginalized groups.^(29,30)

Building metacognitive awareness among students can also foster their ability to locate and apply reliable health information. Studies suggest that self-confidence is a precursor to self-efficacy and metacognition, making it a key factor in developing informed health behaviors.^(31,32,33,34) Bozgün e al.⁽³⁵⁾ affirm that self-confidence strongly predicts metacognitive awareness, an important trait in navigating complex health decisions such as those involving HIV/AIDS.

Global evidence supports the effectiveness of large-scale HIV awareness campaigns. Over the course of the U.S. epidemic, initiatives grounded in social marketing theory and benchmark criteria^(41,42) have played a central role in increasing testing and prevention behaviors.^(36,37,38,39,40,41,42,43) Campaigns such as “Let’s Stop HIV Together” and “Undetectable = Untransmittable (U = U)” have also improved awareness and reduced stigma, while targeted efforts have influenced knowledge and acceptance of PrEP, particularly in marginalized racial and ethnic populations.^(44,45)

Cultural contexts remain equally critical. In Pakistan, for instance, government-led emergency campaigns, health seminars, and behavior-focused interventions are recommended to address HIV transmission risks, including those linked to sexual practices, drug use, and unsafe blood transfusion.^(46,47,48) Islamic values and teachings, when integrated appropriately, have also supported prevention efforts in Muslim-majority settings.^(49,51,52) Khan et al. further emphasize that quality of life, social awareness, and political will are interconnected factors that foster health-conscious behaviors and reduce HIV transmission.⁽⁵³⁾

The present findings, supported by this broad body of literature, indicate that interactive, student-centered, and contextually relevant educational strategies can substantially enhance HIV awareness and reduce stigma. To maximize and sustain these benefits, interventions should be institutionalized within curricula, blended with digital and peer-led approaches, and embedded within community partnerships that reinforce both knowledge and behavior change.

While the results were strong and statistically robust, several limitations should be acknowledged to ensure balanced interpretation. First, the study was conducted in only one public high school with a modest sample size ($n = 59$), which limits generalizability to broader or more diverse student populations. Future research should include multiple schools across varied socioeconomic and cultural settings to increase external validity. Second, the absence of a control or comparison group limits causal inference; the observed improvements could partly reflect testing or Hawthorne effects, where respondents alter their behavior due to repeated measurement or researcher presence. Employing randomized or quasi-experimental designs in future studies would strengthen causal attribution.

Third, the posttest was administered shortly after the intervention, so long-term retention of knowledge and behavior could not be assessed. Follow-up testing after several months would determine whether gains are sustained over time. Fourth, all data were self-reported, which may be influenced by social desirability bias; some participants might overstate socially approved behaviors or attitudes. Incorporating peer assessments or behavioral observations could improve data reliability.

Lastly, the program did not deeply explore external contextual factors such as gender norms, parental attitudes, or community stigma, which may moderate intervention outcomes. Addressing these socio-cultural dimensions in future designs could yield more comprehensive and lasting impacts.

Despite these limitations, the findings provide strong empirical support for integrating interactive HIV education into the secondary school curriculum. By combining structured instruction with culturally sensitive, participatory, and technology-assisted learning, educational institutions can promote sustained HIV literacy, positive attitudes, and responsible health practices among adolescents.

CONCLUSIONS

The findings of this study suggest that a structured, school-based, training-oriented intervention may substantially enhance Senior High School students' knowledge, awareness, attitudes, and practices related to HIV. Results indicated a progression from novice and beginner levels at baseline to intermediate and advanced levels after the training, with statistical analyses showing notable gains across all domains. Beyond knowledge acquisition, the intervention appeared to foster more supportive attitudes, encourage safer behaviors, and reduce stigma, as reflected both in quantitative measures and in students' qualitative feedback. These outcomes lend support to the view that interactive and participatory approaches—combining expert input, peer engagement, and creative activities—can be effective strategies for addressing misconceptions, promoting health literacy, and empowering adolescents to participate actively in HIV awareness initiatives.

This study also highlights the potential value of embedding HIV education into school curricula as part of broader health literacy programs. By normalizing discussions around HIV and providing accurate, age-appropriate, and culturally sensitive information, schools may help reduce stigma and promote more inclusive learning environments. Although the intervention produced encouraging short-term effects, its sustainability remains to be established. Continuous reinforcement, integration with digital and peer-led strategies, and partnerships with community health providers could strengthen and maintain these outcomes over time. Ultimately, empowering young people through education is likely to contribute to improved decision-making and responsible behavior, thereby supporting ongoing national and global efforts to curb the spread of HIV.

BIBLIOGRAPHIC REFERENCES

1. Montegrico J, Lee J, Santos J, Cutamora J, Loa R. A scoping review of factors contributing to the high HIV incidence in the Philippines: directions for developing preventive interventions and research program. Preprints. 2024. doi:10.20944/preprints202404.0281.v1
2. Singh L, Priya K, Chaudhary K. Comparison assessment regarding the awareness, behaviors and attitude towards HIV/AIDS of dental students in comparison to other allied sciences. *Sci Prog Res.* 2021;1(1):27-31. doi:10.52152/spr/2021.104
3. Saputri T, Murtiningsih. Sexually transmitted infections as entry points for HIV infection. *Int J Public Health Sci.* 2020;9(2):136-42. doi:10.11591/ijphs.v9i2.20359
4. Nursinah N, Muslimin B. Knowledge, attitudes, and behaviors towards HIV-AIDS prevention: a descriptive study in Harapan Village, Mimika Regency, Central Papua. *J Paradigma J Sociol Res Educ.* 2023;4(2):158-66. doi:10.53682/jpjsre.v4i2.7923
5. Almatrafi R, Kamel S, Algarni A, Almatrafi N, Aledrisi M, Algarni M, et al. The impact of an educational program on the awareness and knowledge of human papilloma virus (HPV) vaccine among secondary school girls in Saudi Arabia. *Cureus.* 2024;16(2):e64957. doi:10.7759/cureus.64957
6. Dowse R, Ehlers M. The evaluation of pharmaceutical pictograms in a low-literate South African population. *Patient Educ Couns.* 2005;58(1):63-71. doi:10.1016/j.pec.2004.06.012
7. Wali A, Ramesh M, Naidu N. Effectiveness of passive instructions on patient literacy: a systematic review. *Res Social Adm Pharm.* 2016;12(4):e31-2. doi:10.1016/j.sapharm.2016.05.040
8. Al Sayah F, Williams B, Johnson JA. Measuring health literacy in individuals with diabetes: a systematic review and evaluation of available measures. *Health Educ Behav.* 2012;40(1):42-55. doi:10.1177/1090198111436341
9. Dyrehave C, Rasmussen DN, Hønge BL, Jespersen S, Correia FG, Medina C, et al. Non-adherence to medication among patients with chronic diseases in Guinea-Bissau, Africa: a cross-sectional study. *BMJ Open.* 2016;6(3):e010569. doi:10.1136/bmjopen-2015-010569
10. Audet CM, Salato J, Vermund SH, Amico KR. Adapting an adherence support workers intervention: engaging traditional healers as adherence partners for persons enrolled in HIV care and treatment in rural Mozambique. *Implement Sci.* 2017;12:50. doi:10.1186/s13012-017-0582-z
11. Mbanda N. Improving health literacy for persons with low literacy: an analysis of a South African HIV health education programme. HSRC Press. 2024. doi:10.36615/9781776482870

12. Rosário J, Dias S, Dias S, Pedro A. Navigational health literacy and health service use among higher education students in Alentejo, Portugal: a cross-sectional study. *PLoS One*. 2025;20(5):e0322181. doi:10.1371/journal.pone.0322181
13. Wiedermann C, Rina P, Barbieri V, Piccoliori G, Engl A. Integrating a strategic framework to improve health education in schools in South Tyrol, Italy. *Epidemiologia*. 2024;5(3):371-84. doi:10.3390/epidemiologia5030027
14. Rosário J, Raposo B, Santos E, Dias S, Pedro A. Efficacy of health literacy interventions aimed to improve health gains of higher education students: a systematic review. *BMC Public Health*. 2024;24(1):18358. doi:10.1186/s12889-024-18358-4
15. Huang H, Xie M, Yang Z, Wang A. Enhancing HIV cognitive abilities and self-management through information technology-assisted interventions: scoping review (preprint). *JMIR Preprints*. 2024. doi:10.2196/preprints.57363
16. Badru T, Mwaisaka J, Khamofu H, Agbakwuru C, Adedokun O, Pandey S, et al. HIV comprehensive knowledge and prevalence among young adolescents in Nigeria: evidence from Akwa Ibom AIDS Indicator Survey, 2017. *BMC Public Health*. 2020;20(1):45. doi:10.1186/s12889-019-7890-y
17. Hill M, Coker S. Novel use of video logs to deliver educational interventions to Black women for disease prevention. *West J Emerg Med*. 2022;23(2):211-21. doi:10.5811/westjem.2021.12.54012
18. World Health Organization. Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations. Geneva: WHO; 2017. <https://www.who.int/publications/i/item/9789241511124>
19. Faust L, Yaya S. The effect of HIV educational interventions on knowledge and stigma: a systematic review. *Afr J Reprod Health*. 2018;22(1):1-12. doi:10.29063/ajrh2018/v22i1.1
20. Martínez Sanz J, Serrano Villar S, Sainz T, Navarro ML, Mellado MJ, de José MI, et al. Effects of educational interventions in HIV-infected children and adolescents: a systematic review and meta-analysis. *AIDS Care*. 2019;31(9):1093-104. doi:10.1080/09540121.2019.1576844
21. Nyblade L, Stockton MA, Giger K, Bond V, Ekstrand ML, Lean RM, et al. Stigma in health facilities: why it matters and how we can change it. *BMC Med*. 2019;17:25. doi:10.1186/s12916-019-1256-2
22. Bergam S, Sibaya T, Ndlela N, Kuzwayo M, Fomo M, Goldstein M, et al. “I am not shy anymore”: a qualitative study of the role of an interactive mHealth intervention on sexual health knowledge, attitudes, and behaviors of South African adolescents with perinatal HIV. *Reprod Health*. 2022;19(1):15. doi:10.1186/s12978-022-01519-2
23. Jones J, et al. Knowledge, awareness, and stigma in HIV health outcomes: a review. *J Health Psychol*. 2018;23(9):1152-60.
24. Nelsen E, et al. HIV knowledge, awareness, and stigma in relationships: evidence from couples studies. *AIDS Care*. 2019;31(6):737-44.
25. Singh V, Lata S. Knowledge and awareness of HIV/AIDS, mental health problems, and stigma among HIV/AIDS children: a mediation analysis. *Asian Pac J Health Sci*. 2023;10(1):46-51. doi:10.21276/apjhs.2023.10.1.10
26. Yu S, MacGibbon J, Bavinton B, Smith A, Rule J, Mao L, et al. Associations between country of birth, migration status and engagement in HIV care among gay and bisexual men living with HIV in Australia, 2019-2022. *HIV Med*. 2025;26(5):688-700. doi:10.1111/hiv.13769
27. Rao D, Kemp C, et al. Stigma as a barrier to HIV care engagement: insights from clinical trial participants. *J Int AIDS Soc*. 2018;21(Suppl 5):e25198. doi:10.1002/jia2.25198
28. McCoy K, Lipira L, Kemp C, Nevin P, Huh D, Turan J, et al. Exploring HIV-related stigma as a determinant of engagement in HIV care by African American women. *J Assoc Nurses AIDS Care*. 2020;31(2):167-75. doi:10.1097/JNC.0000000000000140

29. Bhattacharjee P, Musyoki H, Becker M, Musimbi J, Kaosa S, Kioko J, et al. HIV prevention programmes for female sex workers in Kenya: what is the role of community mobilisation? *J Int AIDS Soc*. 2019;22(Suppl 4):e25348. doi:10.1002/jia2.25348
30. Khan S. Community-based HIV awareness and prevention. Preprints. 2024. doi:10.20944/preprints202401.1748.v1
31. Cera R, Cristini E, Antonietti A. Self-confidence and metacognition: an empirical study. *Metacognition Learn*. 2013;8(3):385-98. doi:10.1007/s11409-013-9100-4
32. Ridlo I, Lutfiya N. Health literacy, metacognition, and informed behaviors: a review. *Procedia Soc Behav Sci*. 2017;219:435-40.
33. Schraw G, Crippen KJ, Hartley K. Promoting self-regulation in science education: metacognition as part of a broader perspective on learning. *Res Sci Educ*. 2006;36:111-39. doi:10.1007/s11165-005-3917-8
34. Yurdakul B, Demirel Ö. The relationship between metacognition and academic achievement. *Procedia Soc Behav Sci*. 2011;15:4034-9. doi:10.1016/j.sbspro.2011.04.403
35. Bozgün K, Kösterelioglu M. Self-confidence as the predictor of metacognitive awareness in high school students. *Particip Educ Res*. 2023;10(1):375-88. doi:10.17275/per.23.20.10.1
36. Myhre SL, Flora JA. HIV/AIDS communication campaigns: progress and prospects. *Health Commun*. 2000;12(3):223-48. doi:10.1207/S15327027HC1203_01
37. Noar SM, Palmgreen P, Chabot M, Dobransky N, Zimmerman RS. A 10-year systematic review of HIV/AIDS mass communication campaigns: have we made progress? *J Health Commun*. 2009;14(1):15-42. doi:10.1080/10810730802592239
38. Wakefield MA, Loken B, Hornik RC. Use of mass media campaigns to change health behaviour. *Lancet*. 2010;376(9748):1261-71. doi:10.1016/S0140-6736(10)60809-4
39. Castel AD, Greenberg AE, Befus M, Willis S, Samala R, Rocha N, et al. Temporal association between expanded HIV testing and improvements in population-level HIV/AIDS clinical outcomes, Washington, DC. *AIDS Behav*. 2012;16(2):563-71. doi:10.1007/s10461-011-9915-9
40. Myers JE, Braunstein SL, Shepard CW, Cutler BH, Shepherd EA, Edelstein ZR, et al. Assessing the impact of a large-scale HIV testing expansion in the Bronx, NY: a model for urban jurisdictions. *PLoS One*. 2012;7(3):e32573. doi:10.1371/journal.pone.0032573
41. Andreasen AR. Marketing social change: changing behavior to promote health, social development, and the environment. 1st ed. San Francisco: Jossey-Bass; 2002.
42. National Social Marketing Centre. Social marketing benchmark criteria. London: NSMC; 2012. Available from: <https://www.thensmc.com/content/social-marketing-benchmark-criteria>
43. Edelstein Z, Kharfen M, Kim M, Tsoi B, Salcuni P, Gamble T, et al. Use of awareness-raising campaigns to expand HIV testing: experiences in the Bronx, NY and Washington, DC (HPTN 065 study). *J Soc Mark*. 2020;10(3):339-56. doi:10.1108/JSOCM-10-2018-0114
44. Wang G, Song W, Rao S, Heitgerd J, Mulatu M, Karch D, et al. HIV positivity, linkage to medical care, interview for partner services, and pre-exposure prophylaxis awareness and referral among men who have sex with men tested in non-healthcare settings in the United States, 2019. *J Acquir Immune Defic Syndr*. 2023;92(1):34-41. doi:10.1097/QAI.0000000000003106
45. Wells N. U=U, PrEP and the unrealised promise of ending HIV-related stigma. *Sex Health*. 2023;20(3):271-2. doi:10.1071/SH23045
46. Irfan S, Qadir MI, Ali A. Public awareness and preventive measures regarding HIV/AIDS in Pakistan. *Int J Pharm Sci Res*. 2019;10(2):907-12. doi:10.13040/IJPSR.0975-8232.10(2).907-12

47. Ujan I, Abro S, Rind I. Emergency HIV campaigns in Pakistan: effectiveness and challenges. *Pak J Public Health*. 2019;9(4):192-7. doi:10.32413/pjph.v9i4.257
48. Waheed M, Zaheer H. Blood transfusion safety and HIV awareness in Pakistan. *Glob J Transfus Med*. 2019;4(2):149-54. doi:10.4103/GJTM.GJTM_47_19
49. Ibrahim F, Songwathana P. Cultural influences on HIV transmission and prevention in Muslim-majority countries: a review. *Nurs Health Sci*. 2009;11(4):357-63. doi:10.1111/j.1442-2018.2009.00455.x
50. Iqbal Z, Farooq S, Ali N. Religion and HIV prevention: perspectives from Pakistan. *J Relig Health*. 2019;58(6):2092-105. doi:10.1007/s10943-019-00872-0
51. Naif HM, Alosaimi M, Alghamdi A. Cultural practices and HIV transmission risks in Muslim populations. *J Infect Public Health*. 2019;12(5):689-94. doi:10.1016/j.jiph.2019.03.011
52. Rajabali A, Khan S, Warraich H, Khanani R, Ali S. HIV in Pakistan: the battle begins. *J Pak Med Assoc*. 2008;58(5):259-60. PMID:18505047
53. Khan S, Azhar T, Ali R, Shahid M. Impact of quality of life, social awareness and political willingness on prevention from HIV/AIDS in Pakistan: a mediation and moderation model. *Pak J Humanit Soc Sci*. 2023;11(2):517-25. doi:10.52131/pjhss.2023.1102.0569

FINANCING

The authors did not receive financing for the development of this research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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