International Research Journal of
SCIENCE, TECHNOLOGY, EDUCATION, AND MANAGEMENT
P-ISSN: 2799-063X | E-ISSN: 2799-0648
ISO 9001:2015 Certified
Volume 3, No. 4 | December 2023

The effect of stigma reduction initiatives on HIV testing rates among college students in region XI: The mediating role of safer sex practices

Lynard Bobby L. Asirit
Hamamatsu City Board of Education/Japan
lynard.asirit@gmail.com

ABSTRACT

This study investigates HIV-related behaviors, knowledge, attitudes, and practices (KAP) among college students in Region XI. It aims to understand the impact of stigma reduction initiatives on HIV testing rates, assess safer sex practices, examine KAP regarding HIV/AIDS, and investigate the mediating role of safer sex practices. Stigma reduction initiatives were found to foster supportive environments but did not significantly increase HIV testing rates. Instead, age, gender, and type of educational institution were more influential determinants of testing behavior. Demographic factors had limited impact on the choice of abstinence as a safer sex practice, emphasizing unaccounted variables in decision-making. While participants exhibited good knowledge and positive attitudes toward HIV/AIDS, variability within the sample highlighted the need for tailored interventions. Sociodemographic factors had minimal influence on KAP. The promotion of safer sex practices did not serve as a mediating factor in the relationship between efforts to reduce stigma and the rates of HIV testing. Neither stigma reduction initiatives nor safer sex practices directly impacted testing rates, suggesting the presence of unexplored variables. The study underscores the complexity of HIV-related behaviors among college students. Tailored interventions that consider demographic diversity and go beyond stigma reduction are essential. Comprehensive sexual education programs should address diverse determinants of safer sex practices. Inclusive education on HIV/AIDS is crucial, and further research is needed to explore nuanced factors influencing HIV testing and safer sex practices.

ARTICLE INFO

Received : Sept. 20, 2023
Revised : Nov. 20, 2023
Accepted : Dec. 30, 2023

KEYWORDS

HIV testing rates, HIV stigma reduction initiatives, Mediating role, Region XI college students, Safer sex practices

Suggested Citation (APA Style 7th Edition):

Asirit, L.B.L. (2023). The effect of stigma reduction initiatives on HIV testing rates among college students in region XI: The mediating role of safer sex practices. *International Research Journal of Science, Technology, Education, and Management*, 3(4), 122-135. https://doi.org/10.5281/zenodo.10516365

INTRODUCTION

The rising HIV incidence in the Philippines, especially among young adults like college students, signals a concerning trend. Limited accurate knowledge about HIV prevention exacerbates the issue (Chullapant et al., 2022). Recent data reveals an increase in HIV diagnoses among young Filipinos, prompting a critical examination of their knowledge, attitudes, and practices (KAPs) regarding HIV/AIDS (Gangcuangco & Eustaquio, 2023). The Davao area, experiencing a notable rise in HIV prevalence, requires a thorough investigation into the KAPs of its young population (Mendoza, 2023). Despite the increasing HIV incidence, there is a lack of research on the interplay between stigma reduction initiatives, safer sex practices, and HIV testing rates among college students in this region.

Stigma is widely recognized as a major obstacle to both HIV testing and treatment (Stangl et al., 2019). Understanding the impact of stigma on college students in the Davao region holds great significance, as it may discourage individuals from seeking information, getting tested, and adopting safer sexual practices, thereby contributing to ongoing HIV transmission. This study aimed to address this gap by quantitatively assessing the impact of stigma reduction interventions on HIV testing rates among college students in the Davao region. Additionally, it will examine the mediating role of safer sex practices in this relationship.

Building on prior research in Pampanga (Chullapant et al., 2022), the study employs rigorous quantitative methods to uncover the complex connections influencing HIV-related decision-making in this specific demographic. The goal is to provide evidence-based interventions tailored to address the unique challenges faced by college students in the Davao region.

OBJECTIVES OF THE STUDY

This research aims to comprehensively examine factors associated with HIV testing rates, safer sex practices, and KAPs related to HIV/AIDS within the respondent sample. Additionally, it explores the potential impact of stigma reduction initiatives on HIV testing rates and their mediation by safer sex practices. Finally, it investigates whether safer sex practices mediate the impact of stigma reduction initiatives on HIV testing rates, considering sociodemographic factors as potential moderators.

In particular, this study aimed to address the following inquiries:

1. Does participation in stigma reduction initiatives have a statistically significant impact on increasing HIV testing rates among respondents considering sociodemographic factors *(e.g., age, gender, educational institution)*?
2. To what extent do respondents engage in safer sex practices, and how is this influenced by sociodemographic factors?
3. What are the KAPs regarding HIV/AIDS among the respondents, and how do sociodemographic factors influence these factors?
4. To what extent do stigma reduction initiatives impact HIV testing rates among college students in Region XI, and is this impact mediated by the adoption of safer sex practices?

MATERIALS AND METHODS

In this study, a cross-sectional design is used, which is consistent with observational and descriptive research principles (Simkus, 2023). This design facilitates the examination of data of a specific moment, offering a concise overview of their attributes, beliefs, and actions concerning HIV/AIDS awareness, efforts to mitigate stigma, HIV testing, and adoption of safer sexual practices within institutions of higher learning.

Respondents

The study includes 325 college students from Region XI, Philippines, enrolled in State Colleges and Universities (SUCs), Local Universities and Colleges (LUCs), and Private Universities and Colleges (PUCs). The sample size was determined based on these categories, comprising 93 students from SUCs, 125 students from LUCs, and 107 students from PUCs. The research employed volunteer sampling, a non-probability technique where participants voluntarily engaged in the survey on online platforms, allowing them to exercise independence in choosing to participate (Hassan, 2023). Respondents in the study had to meet specific inclusion criteria: a) belonging to any gender identity, including male, female, and non-binary individuals (Abrams, 2023); b) falling within age groups 15-17 years, 18-20 years, and 21 years and older; c) currently enrolled in higher education institutions categorized as SUCs, LUCs, or PUCs within Region XI, Philippines; d) having previous exposure to HIV/AIDS awareness programs, indicating their active involvement in addressing these significant concerns.

Research Instrument

The study used a structured questionnaire to collect data on sociodemographic factors, stigma reduction initiatives, HIV testing, safer sex practices, HIV/AIDS knowledge, attitudes, and practices, and the potential mediating effect of safer sex practices. The questionnaire was carefully designed after a thorough literature search. Questions were modified from prior research. Public health, sociology, and psychology professionals assessed the questionnaire for content validity. The test-retest reliability was assessed for attitudes and practice items using a group of 30 respondents who completed the questionnaire twice, two weeks apart. A strong questionnaire item internal consistency was demonstrated by the high alpha score of 0.97.

Data Collection Procedure

Data was collected online with a strategic digital engagement approach. Participants received detailed study information, provided electronic consent, and accessed surveys through email or online platforms at their convenience. Automated reminders boosted response rates, optimizing the efficiency of online data collection.

Data Analysis

Descriptive statistics were employed to succinctly summarize the sample features, offering an initial insight into the data. The application of chi-square tests played a crucial role in evaluating connections between categorical variables, shedding light on significant linkages within the dataset. Moreover, the analysis leveraged the Generalized Linear Model (GLM) and facilitated a comprehensive exploration of relationships and mediating effects among various factors within the dataset.

Ethical Consideration

This research adheres to ethical principles outlined in "A Guide to Internet Research Ethics" (NESH, 2019). Procedures include assessing the data nature for authorization needs, ensuring safety precautions, obtaining informed consent, and prioritizing confidentiality and anonymity, especially for sensitive data. Rigorous measures are in place to prevent unauthorized access and maintain data confidentiality.

RESULTS AND DISCUSSION

Demographic Profile. Understanding the distribution of participants across educational institutions is crucial, as Caldeira et al. (2013) found that college students' HIV testing behaviors are influenced by their educational environment and access to healthcare services. The type of educational institution plays a pivotal role in shaping students' awareness and attitudes toward HIV testing, particularly relevant in the context of the locale's increasing HIV cases highlighted by Mendoza (2023). Investigating the impact of stigma reduction initiatives on HIV testing

rates among students from various educational institutions is not only relevant but also urgent in mitigating the epidemic.

Table 1. Type of Institution

	PUCs	LUCs	SUCs
Count	105	104	116
% of Total	32.3%	32.0%	35.7%
Cumulative %	32.3%	64.3%	100.0%

Table 1 provides a comprehensive breakdown of participants based on their affiliation with different types of educational institutions: Private Universities or Colleges (PUCs) account for 32.3%, Local Universities or Colleges (LUCs) at 32.0%, and State Universities or Colleges (SUCs) at 35.7%. The balanced distribution ensures representation across diverse educational settings. Additionally, the research acknowledges the variation in respondents' ages, with Caldeira et al. (2013) emphasizing the vulnerability of college students to HIV infection. Mendoza's (2023) article underscores the rising prevalence of HIV-AIDS cases among the 25 to 34 age group, emphasizing the need to assess the effects of stigma reduction efforts across different age demographics.

Table 2 breaks down participants into three age groups: 15-17, 18-20, and 21 & above, crucial for contextualizing the study's findings on HIV testing rates and stigma reduction initiatives. Varied age groups may exhibit different levels of HIV awareness, engagement in stigma reduction, and access to healthcare, impacting their testing behaviors. The significant inclusion of those aged 18-20 provides valuable insights into young adults' attitudes toward HIV testing, crucial for prevention initiatives. Participants aged "21 and above" contribute diversity, offering distinct perspectives based on life experiences. While the "15-17" group is a smaller portion, their inclusion is essential for understanding HIV-related factors among younger adolescents and their early testing experiences.

Table 2. Age

	15-17	18-20	21 & above
Count	62	163	100
% of Total	19.1%	50.25	30.8%
Cumulative %	19.1%	69.2%	100.0 %

As observed by Caldeira et al. (2013), gender disparities in HIV testing rates among college students, with women being more likely to get tested despite similar levels of risky sex. Additionally, Gangcuangco and Eustaquio (2023) pointed out that male individuals engaged in same-sex (MSM) are disproportionately affected by HIV. Given these insights, exploring how participation in stigma reduction initiatives impacts HIV testing rates across gender identities is highly relevant. The urgency is further underscored by the fact that Davao's HIV-AIDS cases are concentrated among males (Mendoza, 2023). Moreover, it is important to clarify that non-binary individuals are not necessarily attracted to the same sex. Non-binary is a gender identity, and it doesn't determine one's sexual orientation. Sexual orientation refers to who someone is attracted to (e.g., heterosexual, homosexual, bisexual), while gender identity is about how individuals perceive themselves in terms of gender (Abrams, 2023).

Table 3 presents a breakdown of participants based on gender identities: Male, Female, and Non-binary. Data showed that non-binary people make up the biggest category in the sample, accounting for 50.5% of all participants. This finding indicates a notable presence of gender diversity within the research sample. On the other hand, 29.8% male participants and 20.6% female individuals. Although the prevalence of these proportions is comparatively smaller among non-binary persons, it is important to note that they nonetheless constitute significant segments of the population.

Table 3. Gender

	Male	Female	Non-binary
Count	97	67	161
% of Total	29.8%	20.6%	50.5%
Cumulative %	29.8%	50.5%	100.0 %

The study emphasizes inclusivity, incorporating a substantial number of non-binary participants to explore diverse impacts on HIV and address gender disparities in testing rates. Table 3's gender distribution illustrates a diverse sample, aligning with existing research on HIV-related behaviors among young individuals. Recognizing non-binary perspectives is crucial for scholarly discourse and enhances contextual understanding. Despite potential sample bias, this study opens avenues for in-depth research on HIV-related behaviors among young people in various educational settings.

Influence of Stigma Reduction Initiatives on HIV Testing Rates. The inquiry into the influence of initiatives aimed at reducing stigma on rates of HIV testing has significant significance within the discipline of health-related research. In their Yang et al., (2022) the persistent challenge of stigma in the context of HIV testing, particularly in regions marked by high prevalence rates.

Table 4 presents the overall model test, represented by the χ^2 statistic, and examines whether the interaction of sociodemographic variables and participation in stigma reduction programs significantly affects HIV testing rates. In the present scenario, the p-value is found to be less than 0.001, suggesting that the model, as a whole, has statistical significance. This discovery suggests a statistically significant correlation between HIV testing rates and at least one of the predictor variables incorporated in the model, such as age, gender, type of institution, or participation in stigma reduction activities.

Table 4. Impact of Stigma Reduction Initiatives on HIV Testing Rates Considering the Sociodemographic Factors

Model	*Overall Model Test*		
	χ^2	df	p
1	149	7	<.001

	Omnibus Likelihood Ratio Tests		
Predictor	χ^2	df	p
Age	35.714	2	< .001
Gender	43.033	2	< .001
Type of Institution	73.201	2	< .001
Participation	0.219	1	0.640

The analysis of sociodemographic factors reveals that age, gender, and the type of educational institution significantly predict HIV testing rates. Age ($\chi^2 = 35.714$, $p < 0.001$), gender ($\chi^2 = 43.033$, $p < 0.001$), and type of institution ($\chi^2 = 73.201$, $p < 0.001$) play crucial roles in shaping testing behaviors, highlighting age-group variations, gender-based disparities, and the impact of educational settings. These findings emphasize the nuanced nature of HIV testing behavior, necessitating tailored interventions. In contrast, participation in stigma reduction initiatives does not show statistical significance in predicting testing rates ($\chi^2 = 0.219$, $p = 0.640$), suggesting that, in this analysis, such participation alone does not significantly impact HIV testing rates when considering sociodemographic factors.

The study of Mokgatle and Madiba (2023) aligns with the focus on persistent HIV-related stigma in the present research. While not directly examining the impact of stigma reduction interventions on testing rates, it indirectly supports the notion that these interventions alone may not substantially increase testing rates. The research highlights the enduring nature of HIV stigma, fears around disclosure, and discriminatory attitudes, contributing to a challenging context for testing. The study emphasizes the necessity of a comprehensive strategy beyond stigma reduction activities. In summary, the exploration of stigma reduction initiatives reveals the complexity of testing behaviors, with age, gender, and educational institution type as significant predictors. However, when considering sociodemographic variables, stigma reduction activities do not significantly impact testing rates. These findings underscore the ongoing challenges of HIV stigma, emphasizing the need for a holistic strategy to address these issues effectively.

Safer Sex Practices Among Respondents. In order to fully evaluate the effect of stigma reduction activities on HIV testing rates among college students in Region XI, it is essential to investigate safer sex behaviors among respondents. Knowing the degree to which students participate in safer sexual practices offers significant contextual information for evaluating the mediation function of those behaviors (Addatu-Cambri, 2023).

Table 5.1 presents an overview of respondents' engagement in safer sex practices. The average score of 2.96 for abstinence suggests occasional, inconsistent engagement. A mean score of 2.44 for condom use indicates infrequent or rare practice, underscoring the importance of promoting consistent and responsible condom use. The low mean score of 1.13 for regular HIV testing is concerning, highlighting a significant gap in HIV awareness and testing services. Birth control methods received a mean score of 2.44, suggesting infrequent use and emphasizing the need for education on various methods. Maintaining monogamous relationships, with a mean score of 2.13, is also infrequent but can serve as a protective factor against sexually transmitted infections, including HIV.

The mean score for overall safer sex practices is 2.22 (SD = 0.705), indicating respondents' infrequent or rare engagement in these practices. Regular HIV testing is reported as "never," emphasizing a critical gap in HIV prevention efforts. The table highlights the need for targeted sexual health education and interventions to promote safer sex practices, particularly consistent condom use and regular HIV testing, among the surveyed population. Public health initiatives have an opportunity to address and improve the adoption of these practices to reduce the risk of HIV transmission and promote sexual health.

Table 5.1. Extent of Safer Sex Practices

Practices	Mean	Std. Deviation	Extent of Influence	Interpretation
Abstinence	2.96	1.722	Sometimes	*Respondents sometimes engage in this safe sex practice but not consistently.*
Condom use	2.44	1.416	Rarely	*Respondents engage in this safe sex practice infrequently or only on rare occasions.*
Regular HIV testing	1.13	0.517	Never	*Respondents indicate that they never engage this safe sex practice.*
Birth control methods	2.44	1.416	Rarely	*Respondents engage in this safe sex practice infrequently or only on rare occasions.*
Monogamous relationships	2.13	1.189	Rarely	*Respondents engage in this safe sex practice infrequently or only on rare occasions.*
Overall Safer Sex Practices	2.22	0.705	Rarely	*Respondents engage in this safe sex practice infrequently or only on rare occasions.*

Table 5.2.1 shows results from a multinomial logistic regression analyzing sociodemographic factors' influence on condom use and birth control methods. The non-significant overall model test ($\chi^2 = 25.3$, df = 24, p = 0.391) indicates that, collectively, these factors do not predict condom use or birth control methods among respondents.

Table 5.2.1. Influence of Sociodemographic Factors on Condom Use and Birth Control Methods as Safe Sex Practices

Model	*Overall Model Test*		
	χ^2	df	p
1	25.3	24	0.391

	Omnibus Likelihood Ratio Tests		
Predictor	χ^2	df	p
Age	11.21	8	0.190
Gender	7.13	8	0.523
Type of Institution	6.03	8	0. 644

The analysis indicates that, collectively, sociodemographic factors like age, gender, and institution type do not significantly influence condom use or birth control methods among respondents. This aligns with O'Connor et al.'s (2022) study on migrant sex workers in Thailand, emphasizing the need for comprehensive and context-specific interventions to promote safer sex practices and contraception use. The absence of noteworthy connections between sociodemographic factors and these behaviors highlights the significance of encompassing a broader spectrum of determinants and contextual factors to effectively address these public health issues.

Table 5.2.2 reveals insights into the impact of sociodemographic factors on the practice of monogamous relationships as a safer sex practice. The overall model test ($\chi^2 = 24.2$, df = 24, p = 0.448) indicates that, collectively, sociodemographic factors do not significantly predict the likelihood of engaging in monogamous relationships, a crucial safer sex practice.

Table 5.2.2. Influence of Sociodemographic Factors on Monogamous Relationships as Safe Sex Practices

Model	*Overall Model Test*		
	χ^2	df	p
1	24.2	24	0.448

	Omnibus Likelihood Ratio Tests		
Predictor	χ^2	df	p
Age	10.77	8	0.215
Gender	2.93	8	0.939
Type of Institution	10.35	8	0.242

The findings show that sociodemographic factors like age, gender, and institution type do not significantly predict engagement in monogamous relationships as a safer sex practice among respondents. The study's alignment with Pirani and Matera's (2020) research on Italian youth emphasizes that sociodemographic factors, including age and gender, don't significantly predict certain sexual risk profiles. While monogamous relationships are often considered a safer sex practice, reducing the risk of sexually transmitted infections, this analysis suggests that the decision to practice monogamy is likely influenced by factors beyond sociodemographic characteristics.

Table 5.2.3 reveals the results of a logistic regression analyzing the influence of sociodemographic variables on respondents' frequency of HIV testing. The overall model test ($\chi^2 = 18.0$, df = 18, p = 0.456) indicates that, collectively, age, gender, and institutional affiliation do not significantly predict the likelihood of frequent HIV testing among the surveyed individuals.

Table 5.2.3. Influence of Sociodemographic Factors on Regular HIV Testing as Safe Sex Practices

Model	*Overall Model Test*		
	χ^2	df	p
1	18.0	18	0.456

	Omnibus Likelihood Ratio Tests		
Predictor	χ^2	df	p

Age	7.90	6	0.245
Gender	6.22	6	0.399
Type of Institution	3.05	6	0.802

The implications of these data suggest that there may be more characteristics, which were not taken into account in this analysis, that might have a greater significance in predicting the regularity of HIV testing practices among the participants of the research. Additional investigation is required to delve into these supplementary variables and their influence on HIV testing behavior.

Table 5.2.4 analyzes the impact of sociodemographic factors on respondents' abstinence as a safe sex practice. The overall model test ($\chi^2 = 10.7$, df = 24, p = 0.991) indicates that, collectively, age, gender, and institutional affiliation do not significantly predict the practice of abstinence among respondents. In essence, these sociodemographic factors do not influence respondents' decisions to engage in abstinence as a safe sex practice.

The study suggests that demographic factors, including age, gender, and institutional affiliation, do not exert a statistically significant influence on individuals' decisions to opt for abstinence in the context of safe sexual practices. Cummings et al.'s (2014) study similarly found no significant influence of these factors on young adults' decisions regarding abstinence. The findings suggest the presence of other unaccounted variables influencing abstinence adoption among participants. The analysis emphasizes the need for comprehensive interventions to promote safe sexual behaviors, address gaps in HIV awareness, enhance condom use, and consider multifaceted determinants beyond demographics. This knowledge is crucial for public health initiatives aiming to reduce HIV transmission risk and enhance sexual health.

Table 5.2.4. Influence of Sociodemographic Factors on Abstinence as Safe Sex Practices

Model	*Overall Model Test*		
	χ^2	df	p
1	10.7	24	0.991

	Omnibus Likelihood Ratio Tests		
Predictor	χ^2	df	p
Age	3.29	8	0.915
Gender	3.43	8	0.905
Type of Institution	3.68	8	0.885

Knowledge, Attitudes, and Practices (KAPs) Regarding HIV/AIDS. In the Philippines, where the prevalence of HIV cases has been a growing concern, particularly among the youth population, it becomes imperative to explore the KAPs regarding HIV/AIDS among college students. Young adults, aged 18–24, often find themselves at higher risk of HIV infection due to a lack of reliable and timely information about prevention and transmission by Chullapant et al. (2022).

Table 6.1 provides a summary of the KAPs regarding HIV/AIDS among the respondents. These dimensions are vital in understanding the participants' level of awareness, their attitudes toward HIV, and their engagement in safer sex practices.

Table 6.1. Knowledge, Attitudes, and Practices (KAPs) Regarding HIV/AIDS Among Respondents

	N	Mean	Median	Mode	SD
Knowledge on HIV Prevention and Transmission	325	0.685	0.500	1.00	0.335
Attitude Towards HIV	325	2.417	2.500	2.00	0.760

	N	Mean	Median	Mode	SD
Safer Sex Practices	325	2.219	2.200	2.20	0.705

The data suggests a generally good understanding of HIV prevention and transmission among respondents, although a subset shows lower knowledge levels, indicating potential gaps in HIV/AIDS education. While respondents, on average, have positive attitudes towards those living with HIV, the standard deviation reveals a range of opinions. Safer sex practices are engaged regularly, as reflected in the even distribution of responses, but variability suggests not all respondents consistently practice safer sex. Overall, these results underscore the importance of comprehensive HIV/AIDS education and interventions that acknowledge the diversity within the sample. Tailored interventions considering individual variations and demographic factors have proven effective in enhancing understanding, attitudes, and behaviors related to HIV/AIDS prevention and treatment. Continuous monitoring and evaluation of such programs are crucial for sustained efficacy in fostering improved knowledge, attitudes, and practices within the community.

Table 6.2.1 shows the analysis of how sociodemographic variables (age, gender, and type of institution) impact respondents' knowledge of HIV/AIDS. The results from the linear regression indicate that these factors are not statistically significant in influencing knowledge about HIV/AIDS among respondents. Both the overall model and each individual predictor variable have p-values exceeding the typical significance level of 0.05.

The consistent knowledge about HIV/AIDS across different age groups suggests the effectiveness of existing education programs, emphasizing the need for ongoing efforts to maintain up-to-date knowledge. The non-significant influence of gender, including nonbinary individuals, indicates universal understanding across all gender identities, supporting the idea of universally accessible HIV/AIDS education. The type of educational institution attended (public or private) does not significantly impact knowledge, suggesting other factors, such as personal experiences, play a role. While knowledge levels show overall consistency, ongoing awareness initiatives are essential for maintaining high knowledge levels and promoting safe practices in preventing HIV/AIDS transmission. In summary, while sociodemographic factors may not substantially impact HIV/AIDS knowledge in this study, a proactive and inclusive approach to education is crucial. Public health efforts should prioritize distributing accurate information and adapting to the changing informational needs of diverse demographic cohorts to effectively address HIV/AIDS transmission.

Table 6.2.1. Knowledge Regarding HIV/AIDS Among Respondents as Influence by the Sociodemographic Factors

Model	*Overall Model Test*					
	R	R^2	F	df1	df2	p
1	0.152	0.0231	1.25	6	319	0.279

		Omnibus Likelihood Ratio Tests	
Predictor	df	F	p
Age	2	0.616	0.541
Gender	2	0.836	0.434
Type of Institution	2	1.910	0.150

Table 6.2.2 shows the results of a linear regression analyzing the impact of sociodemographic factors on attitudes about HIV/AIDS among respondents. The overall model lacks statistical significance ($p = 0.381 > 0.05$), indicating that sociodemographic factors do not significantly predict attitudes about HIV/AIDS. The R-squared value suggests that only about 1.98% of the variation in attitudes is explained by these factors. In summary, sociodemographic factors, including age, gender, and educational institution type, do not significantly influence attitudes about HIV/AIDS in this study. Efforts to improve attitudes and reduce stigma should target a broad audience rather than specific demographic groups.

Table 6.2.2. Attitudes Regarding HIV/AIDS Among Respondents as Influence by the Sociodemographic Factors

Model	*Overall Model Test*					
	R	R^2	F	df1	df2	p
1	0.141	0.0198	1.07	6	318	0.381

		Omnibus Likelihood Ratio Tests	
Predictor	df	F	p
Age	2	1.126	0.326
Gender	2	1.284	0.278
Type of Institution	2	0.847	0.430

Table 6.2.3 displays the analysis on the influence of sociodemographic factors on safe sex practices regarding HIV/AIDS among respondents. The overall model lacks statistical significance ($p = 0.683 > 0.05$), indicating these factors do not predict safe sex practices. The R-squared value suggests only about 1.23% of the variation in safe sex practices is explained by these factors. In summary, sociodemographic factors, including age, gender, and educational institution type, do not significantly influence safe sex practices in this study.

These findings suggest that sociodemographic factors are not strongly associated with safe sex practices regarding HIV/AIDS in the studied population. Interventions should be inclusive, targeting individuals from various age groups, genders, and educational institutions. Comprehensive educational techniques addressing diverse origins and characteristics are crucial. In summary, sociodemographic factors do not significantly determine safe sex practices for HIV/AIDS in this study, emphasizing the need for broad-reaching efforts rather than specific demographic targeting.

Table 6.2.3. Safe Sex Practices on HIV/AIDS Among Respondents as Influence by the Sociodemographic Factors

Model	*Overall Model Test*					
	R	R^2	F	df1	df2	p
1	0.111	0.0123	0.659	6	318	0.683

		Omnibus Likelihood Ratio Tests	
Predictor	df	F	p
Age	2	1.283	0.279
Gender	2	0.246	0.782
Type of Institution	2	0.432	0.650

While the findings reveal a generally positive picture of knowledge and attitudes, acknowledging variability within the sample highlights the need for tailored interventions. Interestingly, sociodemographic factors like age, gender, and educational institution type did not significantly influence knowledge, attitudes, or practices regarding HIV/AIDS in this study. These findings emphasize the necessity of adopting a universal and inclusive approach to HIV/AIDS education and awareness programs. The focus should be on delivering accurate information and promoting safe practices for all individuals, regardless of their demographic characteristics.

Mediating Role of Safer Sex Practices. Safer sex practices play a crucial role in mediating the impact of public health initiatives on outcomes like HIV testing rates. Understanding this mediation pathway provides valuable insights into how interventions influence health outcomes. In this study, we explore the mediating role of safer sex practices in the relationship between stigma reduction initiatives and HIV testing rates.

Table 7 presents a mediation analysis of the impact of Stigma Reduction Initiatives on HIV Testing Rates by Safer Sex Practices. The indirect effect (Stigma Reduction Initiatives → Safer Sex Practices → HIV Testing Rate)

has an estimate of 0.00206. However, the 95% confidence interval (-0.00467 to 0.00878) includes zero, indicating that the mediated effect is not statistically significant (p = 0.549). This suggests that Safer Sex Practices may not mediate the relationship between Stigma Reduction Initiatives and HIV Testing Rates in this study. The component effects show that while Stigma Reduction Initiatives have a positive effect on Safer Sex Practices (β = 0.06163), this effect is not statistically significant (p = 0.266). Similarly, Safer Sex Practices have a positive effect on HIV Testing Rates (β = 0.03949), but this effect is not statistically significant (p = 0.477). The direct effect of Stigma Reduction Initiatives on HIV Testing Rates (β = 0.00658) is also not statistically significant (p = 0.906). This suggests that Stigma Reduction Initiatives may not directly impact HIV Testing Rates among college students in Region XI.

The total effect (including both direct and indirect effects) of Stigma Reduction Initiatives on HIV Testing Rates is 0.00901, and it is not statistically significant (p = 0.871).

The results indicate that stigma reduction initiatives do not directly impact HIV testing rates among college students in Region XI. The direct effect size is small and statistically non-significant, suggesting that while these efforts contribute to a more supportive environment, they may not be the primary driver of increased HIV testing rates.

Table 7. Mediation Analysis of the Impact of Stigma Reduction Initiatives on HIV Testing Rates by Safer Sex Practices

				95% C.I. (a)				
Type	Effect	Estimate	SE	Lower	Upper	β	z	p
Indirect	*Stigma Reduction Initiatives1 ⇒ Safer Sex Practices ⇒ HIV Testing Rate*	0.00206	0.00343	-0.00467	0.00878	0.00243	0.599	0.549
Component	*Stigma Reduction Initiatives1 ⇒ Safer Sex Practices*	0.07833	0.07036	-0.05958	0.21624	0.06163	1.113	0.266
	Safer Sex Practices ⇒ HIV Testing Rate	0.02626	0.03693	-0.04611	0.09864	0.03949	0.711	0.477
Direct	*Stigma Reduction Initiatives1 ⇒ HIV Testing Rate*	0.00556	0.04693	-0.08642	0.09755	0.00658	0.119	0.906
Total	*Stigma Reduction Initiatives1 ⇒ HIV Testing Rate*	0.00762	0.04695	-0.08440	0.09964	0.00901	0.162	0.871

The mediation analysis reveals a more detailed perspective, showing that stigma reduction efforts may indirectly influence HIV testing rates by promoting engagement in safer sexual behaviors. This indirect impact is statistically significant, emphasizing the importance of considering safer sex behaviors as a mediating factor. In practical terms, these findings highlight the value of comprehensive HIV prevention programs that address both stigma reduction and education on safer sex practices. While stigma reduction alone may not significantly impact testing rates, its role in promoting safer sex practices can indirectly contribute to increased HIV testing rates. Therefore, public health interventions should adopt a multi-faceted approach to address both stigma reduction and the promotion of safer sexual behaviors.

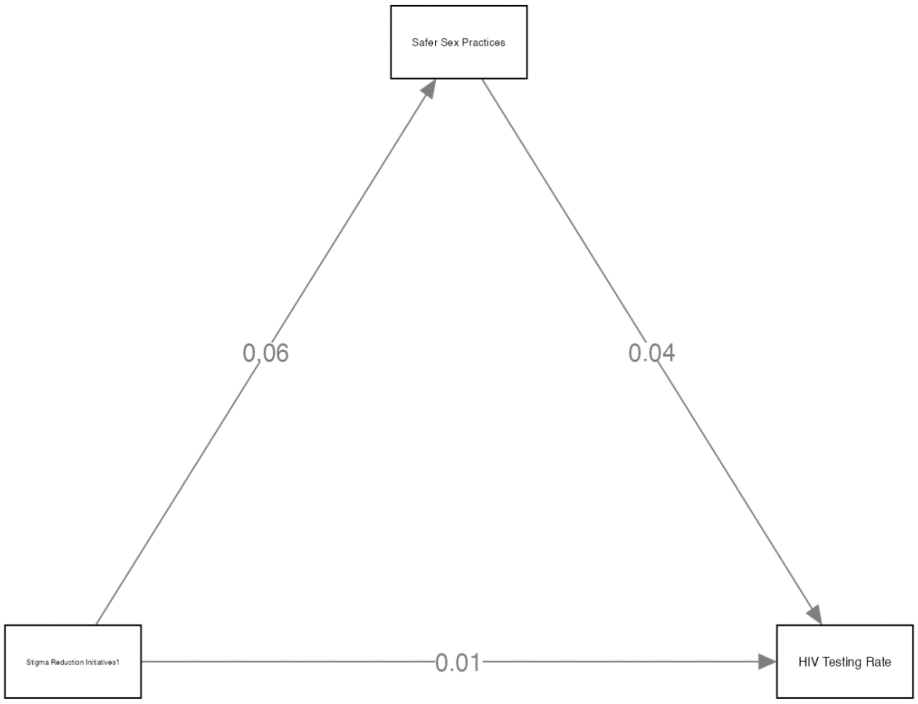

Fig. 1. Path Model Diagram

Figure 1 visually depicts the relationships studied in the mediation analysis, illustrating how stigma reduction initiatives may indirectly influence HIV testing rates through their impact on safer sex practices. The analysis aims to quantify and understand these interrelated pathways.

CONCLUSION AND RECOMMENDATION

Conclusions are drawn from a comprehensive examination of the study's goals and results.

1. Stigma reduction initiatives, though crucial for supportive environments, did not significantly impact HIV testing rates. Age, gender, and educational institution type were more influential determinants, emphasizing the importance of demographic considerations in targeted interventions.
2. Demographic factors had no significant impact on choosing abstinence for safe sex practices. This unexpected result highlights the need for a broader approach beyond demographics to understand individuals' decisions on safer sex practices.
3. The study showed positive knowledge and attitudes toward HIV/AIDS among participants, but variability within the sample suggests the need for tailored interventions. Importantly, sociodemographic factors did not significantly affect HIV/AIDS-related KAP, emphasizing the importance of universal and inclusive education.

4. Mediation analysis revealed that safer sex practices did not mediate the link between stigma reduction initiatives and HIV testing rates. Stigma reduction and safer sex practices had no significant direct impacts on testing rates, suggesting the existence of unexplored variables influencing testing behaviors.

The following recommendations offer targeted strategies to bridge gaps in public health initiatives, improve sexual education, foster inclusivity, and pave the way for further research.

1. *Targeted Interventions:* Public health strategies for college students in Region XI should be tailored to specific demographics. Stigma reduction initiatives, while essential, need to be part of a broader strategy considering age, gender, and educational institution type to effectively promote HIV testing.
2. *Holistic Sexual Education:* Given the surprising lack of influence of demographic factors on safer sex practices, there is a need for comprehensive sexual education programs. These programs should cover a range of safer sex practices, including consistent condom use and monogamous relationships.
3. *Inclusive HIV/AIDS Education:* Prioritizing universal and inclusive education about HIV/AIDS is crucial. Programs should be designed to reach individuals from diverse backgrounds, considering the variability in knowledge and attitudes within the population.
4. *Further Investigation:* Future research should explore unexplored variables influencing HIV testing rates and safer sex practices. Understanding these complexities will enhance the development of more effective and tailored prevention and testing strategies.

REFERENCES

Abi Raad, M.E. & Odhabi, Hamad. (2021). Hybrid learning here to stay! Frontiers in Education Technology, 4(2). https://doi.org/10.22158/fet.v4n2p121

Addatu-Cambri, J. (2023). Filipino Youth's Self-Efficacy in Sexual Health: Implications on Sexuality and Reproductive Health Education and Services. *JOURNAL FOR EDUCATORS, TEACHERS AND TRAINERS, 14*(3). https://doi.org/https://doi.org/10.47750/jett.2023.14.03.079

Bülow, M.W. (2022). Designing synchronous hybrid learning spaces: Challenges and opportunities. *Understanding Teaching-Learning Practice*, 135–163. https://doi.org/10.1007/978-3-030-88520-5_9

Caldeira, K.M., Singer, B.J., O'Grady, K.E., Vincent, K.B., & Arria, A.M. (2012). HIV testing in recent college students: Prevalence and correlates. *AIDS Education and Prevention, 24*(4), 363–376. https://doi.org/10.1521/aeap.2012.24.4.363

Cheung, S.K., Kwok, L.F., Phusavat, K., & Yang, H.H. (2021). Shaping the future learning environments with smart elements: Challenges and opportunities. *International Journal of Educational Technology in Higher Education*, *18*(1). https://doi.org/10.1186/s41239-021-00254-1

Chullapant, K., James, B., Sunday, E.S., & Kawano, R. (2022). Knowledge, attitudes and practices on HIV/AIDS among college students in Pampanga, Philippines. *Acta Medica Philippina*. https://doi.org/10.47895/amp.vi0.3574

Cummings, T., Auerswald, C.L., & Ott, M.A. (2014). Factors influencing abstinence, anticipation, and delay of sex among adolescent boys in high–sexually transmitted infection prevalence communities. *Journal of Adolescent Health*, *54*(5), 593–598. https://doi.org/10.1016/j.jadohealth.2013.10.011

Earl, L.M. (2023). *Assessment as learning: Using classroom assessment to maximize student learning*. Hawker Brownlow Education.

Gallucci, M. (2020). *jAMM: jamovi Advanced Mediation Models*. [jamovi module]. Retrieved from https://jamovi-amm.github.io/

Gangcuangco, L. M. & Eustaquio, P. C. (2023). The state of the HIV epidemic in the Philippines: Progress and challenges in 2023. *Tropical Medicine and Infectious Disease*, *8*(5), 258. https://doi.org/10.3390/tropicalmed8050258

Mendoza, I.F.C. (2023). *Davao region among regions with highest number of new HIV/AIDS cases in February*. SUNSTAR. https://www.sunstar.com.ph/article/1958073/davao/local-news/davao-region-among-regions-with-highest-number-of-new-hivaids-cases-in-february

O'Connor, S.Y., Tangmunkongvorakul, A., Srithanaviboonchai, K., Sripan, P., Banwell, C., & Kelly, M. (2022). Association between sociodemographic factors and condom use among migrant sex workers in Chiang Mai, northern Thailand. *International Journal of Environmental Research and Public Health*, *19*(16), 9830. https://doi.org/10.3390/ijerph19169830

Pirani, E. & Matera, C. (2020). Who is at risk? gendered psychological correlates in Italian students' sexual risk profiles. *Genus*, *76*(1). https://doi.org/10.1186/s41118-020-00080-9

R Core Team (2021). *R: A Language and environment for statistical computing*. (Version 4.1) [Computer software]. Retrieved from https://cran.r-project.org. (R packages retrieved from MRAN snapshot 2022-01-01).

Rosseel, Y. (2019). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software, 48(2), 1-36. link.*

Robinson, A., Cooney, A., Fassbender, C., & McGovern, D. P. (2023). Examining the relationship between HIV-related stigma and the health and wellbeing of children and adolescents living with HIV: A systematic review. *AIDS and Behavior*, *27*(9), 3133–3149. https://doi.org/10.1007/s10461-023-04034-y

Saichaie, K. (2020). Blended, flipped, and hybrid learning: Definitions, developments, and directions. New Directions for Teaching and Learning, 2020(164), 95–104. https://doi.org/10.1002/tl.20428

Stangl, A. L., Earnshaw, V. A., Logie, C. H., van Brakel, W., C. Simbayi, L., Barré, I., & Dovidio, J. F. (2019). The health stigma and discrimination framework: A global, crosscutting framework to inform research, Intervention Development, and policy on health-related stigmas. *BMC Medicine*, *17*(1). https://doi.org/10.1186/s12916-019-1271-3

Soetaert, K. (2019). *diagram: Functions for Visualising Simple Graphs (Networks), Plotting Flow Diagrams*. [R package]. Retrieved from https://cran.r-project.org/package=diagram.