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Research Paper

Differences of Knowledge, Locus of Control and Self-Efficacy On HIV/AIDS Based on Adolescents' Gender.

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ABSTRACT: *The purpose of this study is to investigate differences of knowledge, locus of control and self-efficacy level on HIV and AIDS, the relationship between knowledge, locus of control and self-efficacy and the contribution of age, gender, parents' education, socioeconomic status, and religion to knowledge, locus of control and self-efficacy. because, HIV and AIDS remain significant global health challenges, with the Sub-Saharan region being most affected. Nigeria is part of the region where these infections occurs and the region where this study took place. Despite various efforts to curb its spread, infection rates among adolescents remain alarmingly high due to inadequate awareness and education. Two sampling techniques clustering sampling for location and systematic random sampling used to select the sample. Purposefully 212 questionnaires were used for analysis from 220 collected due to the COVIC 19 pandemics, insecurity and banditry. Five research questions/hypotheses guided the study. SPSS 26 was used to analyze, demographic data was reported using frequencies and percentages, and the mixed-between and within-subject two-way ANOVA was used to test the Null hypotheses at P<0.05. While, Pearson product-moment correlation coefficient for a significant relationship between the two variables at 0.05 and Multiple regression analysis of the stepwise method, and regression ANOVA for significant contribution. The significant findings revealed that there was a statistically significant difference between males and females on the level of knowledge of HIV and AIDS, that gender does not significantly influence the locus of control related to HIV/AIDS in this study, and that gender does not significantly influence self-efficacy related to HIV and AIDS in this study*

KEYWORDS: *HIV, AIDS, Knowledge, Locus of control, Self-efficacy, Adolescent student.*

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I. INTRODUCTION

Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) remain among one of the most significant global health epidemics or challenges in modern history is considered one of the global health epidemics in recent times (1) Moerschbacher et al., 2008. HIV is a lentivirus that leads to progressive immune system deterioration, primarily targeting CD4+ T cells that are crucial for the body's immune defence (2) (Douek, Roederer, & Koup, 2009). The virus enters the host cells through CD4 receptors, reverse-transcribes its RNA into DNA, integrates into the host genome, and replicates itself, eventually weakening the immune system (3)(4) (Weiss, 1993; Fauci, 1996). When the immune system becomes severely compromised, individuals enter the final stage known as AIDS—a syndrome characterized by a constellation of opportunistic

infections and illnesses (5) (Smith et al., 2010). The progression from HIV to AIDS varies among individuals but typically occurs within 10-15 years in the absence of antiretroviral therapy (ART) (6) (Smith et al., 2010).

Despite advances in treatment and prevention, HIV and AIDS continue to pose serious public health and socio-economic threats, especially in developing regions. According to the World Health Organization (7) (WHO, 2014), more than 25 million lives have been lost to HIV/AIDS over the past three decades. As of 2018, an estimated 37.8 million people globally were living with HIV, with Sub-Saharan Africa accounting for approximately 70% of the global total (8) (WHO, 2018). The epidemic remains particularly concerning among young people, whose vulnerability is often shaped by limited access to accurate information, risky behaviors, and socio-cultural factors including religion and gender norms (9) (Coovadia & Hadingham, 2005). For instance, in 2017, there were approximately two hundred and fifty thousand new HIV infections and thirty-eight thousand deaths of AIDS among adolescents and one million and eight hundred thousand adolescents living with HIV globally. Recently the estimated number of females (15+) is one million and eight hundred thousand (10) (WHO, 2017)

Understanding the factors that influence adolescents' knowledge about HIV/AIDS, as well as their health-related psychological attributes—such as locus of control and self-efficacy—is crucial for designing effective intervention strategies. *Knowledge* refers to the awareness and understanding of HIV transmission, prevention, and treatment; *locus of control* pertains to individuals' beliefs about whether their health outcomes are determined by their own actions (internal) or by external forces such as fate or authority figures (external); and *self-efficacy* relates to one's belief in their ability to perform behaviors necessary to achieve specific outcomes, such as practicing safe sex or seeking testing.

Gender and religion are significant social determinants that shape these constructs during adolescence—a formative period marked by identity development, increased autonomy, and susceptibility to peer and societal influences. Research suggests that males and females may differ in their access to sexual health information, risk perceptions, and health-seeking behaviors due to entrenched gender norms. Similarly, religious doctrines and community beliefs can influence attitudes toward sexuality, stigma, and openness to HIV-related discussions and prevention efforts (1) (Moerschbacher et al., 2008).

1.1 STATEMENT OF THE PROBLEM

Despite decades of global efforts to curb the spread of HIV and AIDS, the epidemic remains a pressing public health challenge, particularly in Sub-Saharan Africa where the majority of new infections occur. Adolescent Population are tagged by (10) UNAIDS (2018) to be highly venerable to HIV and AIDS, that three out of every four new infections in sub-Sahara Africa are among girls aged 15-19 years and the infection rate is high among adolescents. Heterosexual relationships are the primary route by which HIV is transmitted in Nigeria. Given that females constitute more than 80% of infection and continue to make up the bulk of those who are HIV-positive, the problem is especially serious among females (11) (Adeyemi et al., 2016). Adolescents are among the most vulnerable groups due to a combination of biological, social, and psychological factors, and the research took in Niger state which is sharing border with the Federal Capital Territory that is the nation capital city which rank among the first five states with the highest prevalence rate of HIV and AIDS. A critical barrier to effective prevention and control of HIV/AIDS among this population is the variation in knowledge levels, perceived control over health outcomes (locus of control), and confidence in engaging in protective behaviors (self-efficacy).

Emerging evidence suggests that these psychological and informational factors are significantly influenced by social determinants such as gender and religion. For instance, gender roles may limit females' access to sexual health education or constrain their decision-making autonomy, while religious teachings may either support or inhibit open dialogue on HIV prevention, sexuality, and testing. However, there is limited empirical data specifically examining how these factors interact to shape adolescents' understanding and response to HIV and AIDS.

The lack of nuanced insights into how gender and religious affiliation affect adolescents' HIV-related knowledge, locus of control, and self-efficacy hampers the development of targeted, culturally sensitive interventions. Without addressing these disparities, efforts to reduce HIV transmission among young people may remain ineffective or even counterproductive.

Therefore, this study seeks to address this gap by investigating the differences in HIV and AIDS-related knowledge, locus of control, and self-efficacy among adolescents based on their gender and religious background. Understanding these variations is essential for informing inclusive, evidence-based strategies that empower adolescents to make informed decisions about their health and reduce the burden of HIV and AIDS in high-risk communities.

1.2 HYPOTHESES

The following hypotheses was formulated to guide the study.

H_{o1}: There were no differences in mean score between genders on knowledge of HIV and AIDS among secondary school students.?

H_{o2}: There was no difference in mean score between genders on locus of control of HIV and AIDS among secondary school students.?

H_{o3}: There was no difference in mean score between genders on self-efficacy of HIV and AIDS among secondary school students.

H_{o4}: There was no relationship between knowledge, locus of control, and self-efficacy regarding HIV and AIDS among secondary school students.

H_{o5}.There was no predictor of age, gender, parent education, socio economic Status and religion contributes significantly toward the knowledge of HIV and AIDS among Secondary school students?

II. LITERATURE REVIEW

2.1 Epidemiological Trends and Gender Disparities in Adolescent HIV in Nigeria

Recent data underscore the alarming vulnerability of Nigerian adolescents—particularly females—to HIV infection. The 2018 Nigeria AIDS Indicator and Impact Survey (NAIIS) revealed that HIV prevalence among adolescents aged 15–19 increased from 0.2% to 1.3%, with adolescent females disproportionately affected: prevalence among females in this age group was three times that of their male counterparts (0.3% vs. 0.1%), and for those aged 20–24, females were over four times more likely to be infected than males (1.3% vs. 0.3%) (12) (NAIIS, 2018). The gender disparity was most pronounced among adolescents and young people (AYP) aged 20–24. In 2019, adolescent girls accounted for the majority of new infections—over 32,000—significantly surpassing their male peers. New HIV infections among adolescent females (15–19 years) were nearly three times higher than those among males, while females aged 20–24 experienced about one and a half times more new infections than their male counterparts (NACA, 2020). By the first quarter of 2020, an estimated 249,293 adolescents were living with HIV in Nigeria, with females making up about 56% of this population (13) (Spectrum Estimates, 2020). These trends reflect the broader influence of gender-based vulnerabilities. Factors such as limited access to healthcare, lower educational attainment, and harmful gender norms—including sexual and gender-based violence—exacerbate the risk of HIV among adolescent girls and young women (14) (15) (Federal Ministry of Health, 2019; UNAIDS, 2016). Age-disparate sexual relationships, transactional sex, and coercion remain prevalent and are compounded by inadequate HIV knowledge, especially among females.

According to the National Agency for the Control of AIDS (16) (NACA, 2017), major behavioral drivers of HIV among adolescents include multiple and concurrent sexual partnerships, low risk perception, sexual coercion, intergenerational sex, and transactional sex. These behaviors are deeply rooted in socio-cultural norms and economic pressures that vary significantly by gender and religious affiliation. The Nigeria Demographic and Health Survey (17) (NDHS, 2018/2019) further revealed troubling patterns in sexual behavior: over 12% of adolescent girls and 15.3% of boys reported having sex with non-marital, non-cohabiting partners in the year prior. Among those engaging in such high-risk sexual activity, only 37.9% of females and 62.1% of males reported using a condom. Similarly, condom use during the last sexual encounter among adolescents in multiple partnerships was reported by only 35.6% of females and 56.0% of males—highlighting a critical gap in preventive behavior among adolescent girls (18) Pettifor A, Stoner M.Pike C, Bekker L.(2018) noted that low levels of HIV-related knowledge further increase adolescents' vulnerability. In 2018, fewer than half of Nigerian adolescents demonstrated comprehensive HIV knowledge, defined as correctly identifying two primary prevention methods, acknowledging that a healthy-looking person can carry HIV, and rejecting two common misconceptions.

2.2 KNOWLEDGE OF HIV AND AIDS.

Knowledge has long been recognized as a critical determinant of health behavior and a powerful catalyst for positive change in all aspects of human life, including the global fight against HIV/AIDS (19) (Entonu & Agwale, 2007). In response to the HIV/AIDS epidemic, both governmental and non-governmental organizations have initiated extensive awareness campaigns aimed at increasing the population's knowledge and fostering behavior change. However, during the 1980s and early 1990s, the general population's understanding of HIV was limited and often laced with misconceptions—particularly among individuals with little or no formal education. For instance, a study conducted in Jos in 1987 revealed that nearly 80% of those with no formal education had

not heard of HIV, and even among literate individuals, many believed that HIV/AIDS was a divine punishment for promiscuity or could be contracted through casual contact (19) (Entonu & Agwale, 2007).

Adolescents and young adults are particularly vulnerable to the HIV epidemic. According to UNICEF (2011) (20), more than half of all new HIV infections globally occur among young people aged 15 to 24. This vulnerability is largely attributed to inadequate knowledge, misconceptions about transmission, and a lack of consistent engagement in protective health behaviors. Adolescents are more likely to engage in risky sexual practices—such as unprotected sex or multiple sexual partnerships—which heightens their susceptibility to HIV infection. Accurate knowledge about HIV and AIDS is crucial for effective prevention among adolescents. An adolescent's level of HIV knowledge has been identified as a significant predictor of engagement in either risky or protective sexual behavior. Furthermore, knowledge can influence the likelihood of future STI exposure and long-term sexual health outcomes. While global and local studies suggest that HIV awareness has improved over time, considerable disparities persist. For instance, (21) Huda and Amanullah (2013) found that about 40% of students in Bangladesh had very good knowledge of HIV and AIDS, with their primary sources of information being television, newspapers, radio, textbooks, and teachers.

2.3 Locus of Control and HIV/AIDS Risk

Adolescence is a formative stage marked by significant psychological, emotional, and social development. During this period, individuals begin to assume greater responsibility for their health-related decisions and behaviors. One of the most influential psychological constructs in understanding health behavior among adolescents is the **locus of control**—a concept introduced in the 1960s and widely applied to health psychology.

Locus of control refers to the extent to which individuals believe that life outcomes are determined by their own actions (internal locus) or by external forces such as fate, chance, or powerful others (external locus). (22) Burns and Dillon (2005) described locus of control as a measure of the perceived source of control over life events. Expanding on this, (23) Shehu and Mokgwathi (2008) explained that health locus of control (HLC) specifically addresses beliefs about what influences health and illness—whether it be personal effort, the actions of others, or pure chance. (22) Burns and Dillon (2005) has demonstrated that locus of control significantly affects health-related behaviors, including those related to HIV prevention. Adolescents with a strong internal HLC are more likely to believe that their health is a result of their own decisions and are thus more inclined to engage in protective behaviors such as condom use. Conversely, adolescents with an external HLC—those who attribute health outcomes to fate or external forces—are more likely to engage in risky sexual behaviors (RSB). A study by (24) Pharr et al. (2015) confirmed that adolescents with an internal HLC reported higher condom use and were more proactive in adopting preventive health measures. Similarly, (25) Victor and Haruna (2012) found that adolescents with an external HLC scored significantly higher on indices of risky sexual behavior compared to those with an internal HLC. These findings highlight the crucial role of locus of control in shaping how adolescents perceive health risks and the actions they take in response.

2.4 Self-Efficacy for HIV and AIDS

Self-efficacy, a concept introduced by (26) Bandura (1977a), refers to an individual's confidence in their ability to perform specific behaviors successfully. It is considered a foundational component in understanding and promoting health-related behavior change. (26), (27) Bandura (1977a, 1986) defined self-efficacy as a form of expectancy reflecting individuals' beliefs or judgments about their capability to execute actions required to manage prospective situations. People with high self-efficacy regarding a particular task tend to have greater confidence in their ability to perform that behavior and, consequently, are more likely to initiate and maintain it (Bandura, 1977b, 2016) (28), (29).

The application of self-efficacy theory has been widespread across health promotion studies, particularly in influencing individuals' decisions to adopt safer health behaviors. Among adolescents, enhancing self-efficacy has proven to be an effective strategy in fostering safer sexual practices, reducing risk-taking behaviors, and increasing their perceived control over health outcomes (27) (30) (31)(32)(33)(34)(35)(30) (Bandura, 1986, 1994, 1995, 2016; DiIorio et al., 2000; Lee et al., 2009; Schwarzer & Luszczynska, 2016; Taylor-Seehafer & Rew, 2000). Given its predictive power, self-efficacy is now widely recognized as a crucial component in the design and implementation of HIV prevention programs (30)(36)(37) (Bandura, 1994; UNAIDS, 2016; Villegas et al., 2013).

Higher levels of HIV/AIDS preventive self-efficacy among adolescents have been consistently linked with reduced engagement in risky sexual behaviors. Adolescents with greater confidence in their ability to negotiate safer sex practices, communicate with partners, or resist pressure to engage in unsafe sex are more likely to engage in protective behaviors.(38) Boone et al. (2015) found that adolescents with stronger self-efficacy regarding condom negotiation and refusal of unsafe sex were less likely to participate in unprotected vaginal and anal intercourse (UVAI), particularly when their partners were known to be HIV-positive or of mixed HIV status.

2.5 SOCIAL LEARNING THEORY (SLT)

Social Learning Theory (SLT), originally developed by (39) Bandura (1969), offers a comprehensive framework for understanding how behavior is learned through interaction with the environment. SLT posits a dynamic and reciprocal relationship between personal factors, environmental influences, and behaviors. Specifically, it suggests that individuals acquire new behaviors not only through direct experience but also by observing others—a concept known as observational learning (27) (Bandura, 1986).

In the context of HIV/AIDS prevention among adolescents, SLT is particularly relevant. Adolescents' knowledge, attitudes, and behaviors are strongly influenced by their socio-cultural environments, including urban or rural settings, family structure (monogamous or polygamous), peer interactions, and media exposure. These environments play a central role in shaping gender roles and sexual norms. For example, cultural environments often instils early beliefs about masculinity, sexual experimentation, and peer validation through multiple sexual partnerships—particularly among males (40) (Asencio, 1999).

SLT highlights several mechanisms through which adolescents learn and adopt HIV-related behaviors:

Role Modeling: Adolescents observe and imitate behaviors from influential figures such as parents, peers, teachers, and media personalities. **Reinforcement**: Behaviors are more likely to be adopted and maintained when they are positively reinforced. For instance, adolescents who receive encouragement or social approval for practicing safe sex are more likely to continue doing so.

Environmental Influence: The norms and expectations of an adolescent's immediate environment significantly affect behavior. According to (39) Bandura (1969), effective behavior change requires not only the transmission of information but also the availability of social support systems and resources that facilitate change. (41) Ajuwon (2000) supports this view, emphasizing that cognitive learning alone is insufficient to alter risky sexual behavior among adolescents. Instead, intervention programs must focus equally on:

Skill acquisition, particularly in communication, assertiveness, and decision-making;

Self-efficacy building, empowering adolescents to believe in their ability to refuse unsafe sex or negotiate condom use;

Peer influence and support, recognizing the central role of adolescent peer networks in shaping behavior;

Social reinforcement, including praise and recognition from significant others for practicing healthy behavior. (42) Macauley and Salter (1995), cited in (41) Ajuwon (2000), argue that identifying and modifying social pressures and norms is essential for fostering positive health behavior. Thus, group-level interventions can help develop norms that support HIV prevention by engaging adolescents in conversations about expectations, resistance to peer pressure, and the value of safe sexual practices.

2.6 HEALTH BELIEF MODEL (HBM)

The Health Belief Model (HBM) psychologically is one of the earliest models/framework developed to explain and predict changes in health behavior by focusing on individuals' attitudes and beliefs, particularly in the context of disease prevention and health promotion.(43). The HBM plays a significant role in shaping public health programs because it offers structured data for evaluating an individual's readiness to change and helps develop educational interventions that are suited to their perceived needs. In the context of HIV and AIDS, the HBM is particularly relevant and is the most frequently used theory in health education, health promotion, and disease prevention (44) (Jones et al. 2018). This is applicable to knowledge of HIV and AIDS, Locus of control to HIV and AIDS and HIV Self-Efficacy. It provides a framework to explore how adolescents' knowledge and perceptions affect their health behaviors. Understanding perceived susceptibility and severity of HIV and AIDS helps to assess how seriously adolescents view their risk, the potential consequences of infection to adopt preventive measures such as using condoms or going for HIV testing and it shape how adolescents respond to health messages and interventions. Locus of control is another important construct within the model, which relates to whether individuals believe they have control over their health outcomes. In the case of HIV and AIDS, integrating the concept of locus of control means understanding how adolescents perceive their ability to prevent infection based on their knowledge and available resources.

Self-efficacy, or belief in one's ability to take the necessary health actions, is a crucial part of the HBM. For HIV and AIDS prevention, this might involve the confidence to negotiate safe sex practices or to seek HIV testing. When adolescents feel empowered and capable of taking these steps, they are more likely to engage in them. External triggers such as health education campaigns, peer influence, or personal experiences with the disease often act as cues to action, reinforcing the intention to adopt healthy behavior. Additionally, self- efficacy is these "self-beliefs" about people's capacity, influence how they behave: expectations of personal efficacy determine whether coping behaviours will be initiated, how much effort will be spent, and how long they will be sustained in the face of obstacles and adverse experiences (26) (Bandura, 1977). In this review, perceived self-efficacy refers to confidence in one's ability to successfully use condoms

III. METHODOLOGY

This study adopted a **quantitative approach** using a **cross-sectional survey design**, which is appropriate for measuring variables across different age groups at a single point in time. This design was chosen for its effectiveness in examining relationships between variables across culturally similar population groups (27) (28) (Bryman & Bell, 2011; Hartung & Touchette, 2009). In a cross-sectional study, all the measurements for a sample are obtained at a single point in time. Some of the key characteristics of a cross-sectional study include (29) (Levin, 2006):

3.1 Population And Sample Size.

The study was conducted across 292 senior secondary schools in the three senatorial zones of Niger State, covering schools that offer education up to SS3. The adolescent student population across these schools was estimated at over 2.01 million. A total of 768 adolescent students participated in the study. The sample size was determined using the (30) Krejcie and Morgan (1970) formula, which suggests that for a population of 1 million, a sample of 384 is adequate. Therefore, for over 2 million, the calculated representative sample was 768 students (original sample size). but due to the limitation caused by the COVID-19 pandemic, plagued by insecurity, kidnapping, banditry during collection of data only 220 respondents completed and submitted the questionnaire and purposefully 212 questionnaires were used for analysis to have equal representation of gender and religion.

3.2 Sampling Techniques

A two-stage sampling technique was employed:
Cluster Sampling: Schools were selected from both large urban centers and smaller towns across the three senatorial zones (Zone A – South, Zone B – East, and Zone C – West), ensuring geographical and socio-cultural representation.
Systematic Random Sampling: Within each zone, schools were selected using a systematic formula: Total number of schools in zone ÷ Number of schools to be sampled. This dual approach ensured a diverse and representative sample of adolescents from varied environments.

3.3 Research Instruments

Data were collected using **five standardized questionnaires**:

HIV/AIDS Knowledge Questionnaire

Awareness/Attitude to AIDS Scale (AAS)

AIDS Multidimensional Health Locus of Control (AMHLC) Questionnaire

Self-Efficacy for AIDS Preventive Behaviors Questionnaire

Akinboye Adolescent HIV/AIDS/STI Awareness Behavior Test and WHO HIV/AIDS KABP (Attitude) Questionnaire

Additional demographic data (e.g., gender, religion, socio-economic background) were also collected. All instruments were administered in English, which is the official medium of instruction in Nigerian secondary schools.

3.4 Reliability of Instruments

To ensure the internal consistency of the instruments, Cronbach's Alpha reliability test was used. A pilot test was conducted with 50 students (25 male, 25 female) who were not part of the main study. According to statistical standards, a Cronbach's Alpha value closer to 1 indicates high reliability. (30) (31) (32) (Conroy, 2016; Mohamad Adam et al., 2018; Yurdugül, 2008). The reliability scores for all instruments exceeded acceptable thresholds, affirming their suitability for data collection in this context.

Table 1.
Cronbach's Alpha for Five Instrument

	Instrument	Crombach's alpha value
i.	The HIV/AIDS Knowledge Questionnaire	.75
ii.	The Awareness/Attitude to AIDS Scale (AAS) Questionnaire	.77
iii.	AIDS Multidimensional Health Locus of Control. (AMHLC)	.78
iv.	Self-Efficacy for AIDS Preventive Behaviors Questionnaire	.81

v.	Akinboye Adolescent HIV/AIDS/STI Awareness Behavior Test and the WHO HIV/AIDS KABP(Attitude)	.73

A generally accepted rule is that an alpha of 0.6-0.7 indicates an acceptable level of reliability, and 0.8 or greater is a very good level (33) (Hulin et al., 2001). The results above show that these five instruments are appropriate to be implemented in this study. English is the language of education in Nigeria. It is the language of instruction from upper primary education, through secondary and tertiary education in Nigeria. Therefore, the research instrument used uses the original language which is the English language.

The ethical issues for the quantitative part of research was follow. that is after the introduction and explanation about the study, the consent form has been read to subjects before initiating the filling of the questionnaire. Participation in the study was on voluntary bases and subjects were informed on their right to interrupt and withdraw from the focus group discussions at any time during the study process.

3.5 Data Analysis

Frequencies and percentages were used to analyze demographic data. Two-way ANOVA statistics are suitable to be used to analyze research questions.

V. RESULT

The demographic data show that respondents were grouped by age (13–19 and 20–24 years), gender, religion (Muslim and non-Muslim), and socio-economic status (low and high). Among the 13–19 age group (n=107), 51 were Muslims and 56 were non-Muslims. Of these, 38 students (15 males, 23 females) were from unspecified socio-economic status, while 32 (16 males, 16 females) were from low SES families, and 37 from high SES families (13 Muslims, 24 non-Muslims). For the 20–24 age group (n=105), 55 were Muslims and 51 were non-Muslims. In this group, 43 respondents (23 males, 20 females) were from unspecified SES, 44 (22 males, 22 females) from low SES, and 18 from high SES (12 Muslims, 6 non-Muslims).

Statistical testing using Levene's Test revealed that the assumption of equal variances was violated for knowledge of HIV and AIDS ($p = 0.030 < 0.05$), indicating significant variability in knowledge scores across groups. However, the assumption held for awareness ($p = 0.475 > 0.05$), suggesting no significant difference in variance for that measure.

Ho_1: There were no differences in mean score between genders on knowledge of HIV and AIDS?

The **Ho_1** was investigated through Table 1. A two-way ANOVA revealed that there was a significant difference, F (1, 208) = 481.296, p = .000, between genders on knowledge of HIV and AIDS. Therefore, the null hypothesis (Ho1) is accepted. The result implies that there is a significant main difference between males and females in knowledge of HIV and AIDS.

Table 1

Two-way Analysis of Variances (ANOVA) Result on Knowledge of HIV and AIDS

Source	SS	Df	MS	F	Sig.
Corrected Model	32.405[a]	3	10.802	161.778	.000
Intercept	868.83	1	868.83	13013.371	.000
Religion	.159	1	.159	2.385	.124
Gender	32.135	1	32.135	481.296	.000
Religion * Gender	.110	1	.110	1.654	.200
Error	13.888	208	.067		
Total	915.176	212			
Corrected Total	46.293	211			

a. R Squared = .700 (Adjusted R Squared = .696)

Ho_2: There was no difference in mean score between genders on locus of control of HIV and AIDS among secondary school students.? The **Ho_4** was investigated through Table 2, A two-way ANOVA (Analysis of Variance) revealed that there was no significant difference, F (1, 208) = .104, p = .748, between gender on locus of control of HIV and AIDS, because the p-value is much greater than 0.05**.** Therefore, the null hypothesis (Ho_7) was accepted. This, therefore, suggests that gender does not significantly influence the locus of control related to HIV/AIDS in this study

Table 2

Two-way Analysis of Variances (ANOVA) on Locus of Control of HIV and AIDS.

Source	SS	Df	MS	F	Sig	Partial Eta Squared
Corrected Model	7.757[a]	3	2.586	2.950	.034	.041
Intercept	2750.481	1	2750.481	3137.45	.000	.938
Religion	7.401	1	7.401	8.442	.004	.000
Gender	.091	1	.091	.104	.748	.039
Religion * Gender	.265	1	.265	.303	.583	.001
Error	182.345	208	.877			
Total	2940.583	212				
Corrected Total	**190.103**	**211**				

a. R Squared = .041 (Adjusted R Squared = .027)

Ho_3: There was no difference in mean score between genders on self-efficacy of HIV and AIDS among secondary school students. The **Ho_3** was investigated through Table 3, A two-way ANOVA (Analysis of Variance) revealed that there was no significant difference, $F(1, 208) = 1.342$, $p = .248$, between gender on self-efficacy of HIV and AIDS, due to reason that the p-value is greater than 0.05,. Therefore, the null hypothesis *(*Ho_{10}) was accepted. This, therefore, implied that gender does not significantly influence self-efficacy related to HIV and AIDS in this study.

Table 3:

Two-way Analysis of Variances (ANOVA) on Self-Efficacy of HIV and *AIDS.*

Source	SS	Df	MS	F	Sig	Partial Eta Squared
Corrected Model	4.072[a]	3	1.357	2.043	.109	.029
Intercept	1943.501	1	1943.501	2924.985	.000	.934
Religion	3.157	1	3.157	4.752	.030	.006
Gender	.891	1	.891	1.342	.248	.022
Religion * Gender	.024	1	.208	.035	.851	.000
[Error	2085.779	208	.664			
Total	142.278	212				
Corrected Total	**190.103**	**211**				

a. R Squared = .029 (Adjusted R Squared = .015)

Pearson correlation which measures the strength of a linear association between the two variables at 0.05 level of significance was performed to test hypothesis.

Ho_4: There was no relationship between knowledge, locus of control, and self-efficacy regarding HIV and AIDS among secondary school students. While flagged significant relationships were at 0.01level.

Table III:

Pearson Correlation Between Knowledge, Locus of Control, and Self-Efficacy, regarding HIV and AIDS

	Knowledge	Locus of Control	Self-Efficacy
Knowledge	1		
Locus of Control	0.10	1	
Self-Efficacy	0.09	0.459**	1

** *Correlation is significant at the 0.01 level (2-tailed).*

The results of Pearson correlation analysis in Table 4 showed that there is a weak and insignificant relationship between the variables knowledge and Locus of control (r = 0.095); Self-efficacy and knowledge (r = 0.087); It can be concluded that there is no significant relationship between knowledge and awareness of HIV and AIDS between Muslim and non-Muslim secondary school adolescents failed to be rejected.

Ho_5.There was no predictor of age, gender, parent education, socio economic Status and religion contributes significantly toward the knowledge of HIV and AIDS among Secondary school students? The model used to test this hypothesis contained five independent variables (age, gender, parent education, socioeconomic status, and religion) to predict knowledge of HIV and AIDS. Table 5 shows the regression analysis result for demographic predictors **(**age, gender, parent education, socioeconomic status, and religion**)** toward the knowledge of HIV and AIDS

Table 5.
Regression Analysis for Demographic Predictors (Age, Gender, Parent Education, Socioeconomic Status, And Religion) Toward Knowledge of HIV and AIDS

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.833[a]	.694	.693	10.42074
2	.837[b]	.701	.698	10.33543

a. Predictors: (Constant), Gender
b. Predictors: (Constant), Gender, Parent Education

Furthermore, the regression ANOVA analysis for demographic predictors (age, gender, parent education, socioeconomic status, and religion) toward knowledge of HIV and AIDS is in Table 6 and came out together with the stepwise multiple regression analysis. It shows that there is a significant relationship between demographic predictor gender [F(1,208) = 472.03, p=.000], and gender and parent education [F(1,208) = 242, p=.000], which contributes significantly to knowledge of HIV and AIDS at a significant level of p<.05.

IV. DISCUSSION OF FINDINGS

This study investigated the influence of demographic variables—particularly age, gender, parental education, socio-economic status, and religion—on secondary school students' knowledge, locus of control, and self-efficacy related to HIV and AIDS. The analysis involved two-way ANOVA, Pearson correlation, and stepwise multiple regression.

The demographic analysis revealed a fairly even distribution between age groups (13–19 and 20–24), gender, and religion (Muslim and non-Muslim), with socio-economic status (SES) further categorized into low and high levels. Interestingly, students from both socio-economic strata were well represented. However, when disaggregated by religion and SES, there appeared to be a slightly higher representation of non-Muslims from high SES backgrounds. This demographic mix provides a strong foundation for exploring the multifaceted influences of background variables on HIV/AIDS-related knowledge and psychological constructs such as locus of control and self-efficacy.

A key finding from the two-way ANOVA was the statistically significant difference in knowledge about HIV and AIDS between male and female students ($F(1,208) = 481.296$, $p = .000$). This indicates that gender plays a crucial role in influencing students' knowledge levels. Given that the variance in knowledge scores was not equal across groups (Levene's Test: $p = 0.030 < 0.05$), this further suggests that gender disparities may be pronounced and possibly influenced by broader socio-cultural or educational factors, including how health information is accessed and internalized across genders. The null hypothesis (Ho1) stating that there is no difference in mean knowledge scores between genders was rejected. Therefore, programs aiming to increase HIV/AIDS awareness may need to be gender-sensitive, addressing the specific knowledge gaps unique to each gender.

In contrast, the results from Table 2 indicated no significant difference between genders concerning the locus of control regarding HIV and AIDS ($F(1,208) = 0.104$, $p = .748$). This suggests that both male and female students generally perceive control over HIV-related outcomes similarly, which implies a level of uniformity in psychological orientation across genders in this regard. While religion showed some statistical significance ($p = 0.004$), its effect size (partial eta squared = .000) suggests that the impact is negligible in practical terms. Therefore, locus of control appears relatively stable and unaffected by gender or religious background in this context.

Similar to locus of control, gender did not significantly influence self-efficacy beliefs concerning HIV and AIDS ($F(1,208) = 1.342$, $p = .248$), supporting the acceptance of the null hypothesis (Ho3). This finding indicates that male and female students feel equally capable of taking actions to prevent HIV infection or manage its implications. While religion showed a statistically significant effect on self-efficacy ($p = 0.030$), the strength of the relationship remains weak (partial eta squared = .006), and its practical implications may be minimal.

These results suggest that interventions aimed at enhancing self-efficacy may not need to differ significantly by gender but may benefit from nuanced attention to religious or cultural contexts to be more effective.

The Pearson correlation results (Table 4) revealed weak and statistically insignificant correlations between knowledge and locus of control ($r = 0.095$), and between knowledge and self-efficacy ($r = 0.087$). However, a moderately strong and statistically significant relationship was found between locus of control and self-efficacy ($r = 0.459$, $p < 0.01$). This finding implies that while knowledge alone may not directly influence

psychological control or efficacy, an individual's belief in their control over HIV-related situations significantly correlates with their confidence in managing them.

This suggests a conceptual link between personal agency (locus of control) and behavioral capability (self-efficacy), reinforcing the notion that psychological empowerment may be more interrelated than cognitive knowledge alone. Interventions may therefore need to target both constructs together for enhanced behavioral outcomes.

The regression analysis (Tables 5 and 6) provided compelling evidence that certain demographic variables significantly predict knowledge of HIV and AIDS. Gender alone accounted for a substantial portion of variance in knowledge ($R^2 = .694$), and the addition of parent education improved the model further ($R^2 = .701$). This finding underscores the critical role that both gender and parental educational background play in shaping students' health knowledge.

Specifically, students with more educated parents likely have greater access to health information, better communication environments at home, and higher exposure to formal and informal educational resources. Additionally, the significant role of gender suggests that differences in socialization and educational experiences between males and females contribute to discrepancies in health knowledge acquisition.

V. CONCLUSION

The study aims to examine secondary school students' knowledge, awareness, locus of control, self-efficacy, and attitudes toward HIV and AIDS. HIV, a virus that compromises the immune system, can progress to AIDS if untreated. The pandemic has significantly impacted not just health sectors but also education, especially among school-aged youth—one of the most vulnerable groups. While knowledge acquisition about HIV can come from formal education, personal experiences, or peer interactions, knowledge alone is insufficient to prevent the spread of the virus. Misconceptions and negative attitudes can contribute to stigma, discrimination, and poor support for those living with HIV. Therefore, a positive attitude and internal locus of control—the belief in one's ability to influence outcomes—are critical for behavior change and HIV prevention. The study also highlights the importance of religion and religious leaders in educating youth about HIV, urging them to understand and address adolescents' unique needs. Students gather HIV-related information from various sources, with mass media (TV, newspapers, radio), health institutions, and increasingly social media serving as the main channels. However, misinformation and misconceptions remain major obstacles to effective HIV prevention and awareness among adolescents.

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