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Regression Analysis of Students' Attitude on Relationship with Persons Living with HIV/AIDS (PLWHA)

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Abstract

Statistics across the globe show that HIV/AIDS infections and its consequences have become widespread and difficult to deal with. Ghana though has had a decrease in infection of recent times, a more strategic approach need to be adopted in order to completely eradicate the pandemic. Stigmatization and discriminatory attitudes have been some of the reasons for the spread of the virus. In order to properly strategize against these attitudes there is the need to identify the variables that influence people to stigmatize and discriminate against PLWHA. This study therefore sought to find whether demographic independent variables such as gender, age, religious denomination, settlement type, marital status, and the belief in the reality of HIV have significant effects on stigmatization and discriminatory attitudes in terms of friendship, sex-mating, and marriage, as dependent variables. Quantitative methods were employed using stratified sampling technique. Questionnaire was utilized to solicit data. SPSS version 17 was used to analyze the data. Seven hypotheses were tested using Standard Logistic Binomial and Multiple Regression. The study showed that, gender (0.012), religious denomination (0.011), settlement-type (0.000), marital status (0.049) and belief that HIV is real (0.006), have significant effects on students' attitude on, at least, one of the dependent variables. When dependent variables were combined, only the effects of belief that HIV is real (0.004), gender (0.025) and settlement-type (0.043) were significant. The study recommends that in fighting against stigmatization and discrimination, education campaigns and strategies should be holistic and multi-targeting in order to help eradicate the HIV/AIDS pandemic.
Key words: friend, marriage, platonic, sex-mate, spouse

1. Introduction

Many countries the world over are struggling with HIV/AIDS infection and its consequential maladies. Global statistics indicate that the level of infection is high and that there is imbalance of progress in a lot of countries (GSS and UNICEF, 2008). About 33 million people globally were harboring the HIV virus in 2007 (GSS and UNICEF, 2007). Africa, particularly sub-Saharan part of the continent is still the region most infected with the virus. In 2007 about 22.5 million people, representing 67% of global infection, were in sub-Saharan African. An estimated 1.7 million adults and children were newly infected in 2007 alone. Those who died of AIDS were estimated at 1.6 million (GSS and UNICEF, 2008).

Ghana as a sub Saharan country has had its fair share of the HIV/AIDS scourge. By 2001, a little less than 5% of the population within the ages of 15 and 49 were infected with the virus (Ministry of Health, 2001; Ghana AIDS Commission 2000). After a decline in the infection rate in the 1990's the pandemic was on the increase (Ministry of Health, 2002). The national median prevalence rate of HIV increased from 2.37% in 2001 to 3.4% in 2002; with a decrease from 3.6% in 2003 to 3.1 in 2004 (Ministry of Health, 2004).

By 2014, about 150,000 people were infected in Ghana. The prevalence rate in 2014 is 0.8 percent. The adult prevalence rate by the end of 2012 was 0.9%. By the end of 2003, about 9,600 children below 15 years were infected with the HIV/AIDS virus. Generally the Eastern Region of Ghana has the highest prevalence rate while the Northern regions of the country are the lowest. About 80 percent of HIV infection in Ghana is through heterosexual intercourse with mother to children transmission making up 15 percent (UNAIDS, 2014).

The 2003 Demographic and Health Survey in Ghana show that, the prevalence rate among younger age groups is low. Few younger age groups persons are infected during their youthful age while the rate peaks at relatively latter parts of their lives (Ministry of Health, 2004).
The negative effects of the HIV/AIDS malady are manifold. First it increases morbidity and mortality resulting in decrease in work productivity, efficiency and effectiveness through absenteeism and punctuality. Second, HIV/AIDS infection increase household expenditure through welfare-related services, funerals, and medical expenses. Time and energy required for caring persons living with HIV/AIDS when quantified could also be very frustrating (Woode & Ahorlu, 2005). These effects brings to the fore the issue of stigmatization and discrimination against people living with HIV/AIDS.

As future leaders and the foundation of economic, social and technical development of the nation, issues on health- life concerning polytechnic students should be of paramount interest and concern. It has been established through research that stigmatization and discrimination against PLWHA brings the endless cycle of infection of the HIV/AIDS virus. However it appears getting closer to infected persons could also bridge this vicious cycle by increasing the spread of the malady through platonic friendship, sex-mating and marriage.

Platonic friendship between heterosexual persons can create an attraction that could finally lead to sex-mating. Sex-mating without the use of condom could lead to infection. It is highly probable that sex-mates who relate for a long time would not be using condom anymore. Also, in order to reduce stigma and discrimination among married persons, it would be appreciated that married couples will not divorce when one is found with the virus. However the possibility of the other victim also becoming infected could be higher in such circumstances.

According to Women of Our World (2002) report, the transmission of the disease has gender connotations. The report indicated that women within the adolescent group are about 2 to 6 times prone to be infected with the virus through sexual intercourse in contrast with their male counterparts. This, though, may be due to the physiology for the female genitalia, fasionability of females, financial pressures, rape and the practice of female genital mutilation among others (Achio 2007).

Children born by infected couples may also be endangered with infection of the virus. Among pregnant or post-partum women infected with the virus, mortality rate was about eight times higher than those not infected with the virus (Zaba, Calvert, Marston, Isingo, Nakiyingi-Miiro & Lutalo, 2013). The study estimated that, in Sub-Saharan Africa about 24% deaths in pregnant or post-partum women could be as a result of HIV infection. This brings about the dilemma of the HIV/AIDS infection in terms of friendship, sex-mating and marriage. The question that arises then is should non-infected persons be-friend, sex-mate and or marry PLWHA?

This study therefore intends to determine the attitudes of polytechnic students in the contexts of platonic friendship, sex-mating and marriage involving HIV-infected persons. It also tries to ascertain the influence of demographic variables such as age, gender, marital status, religious denomination, settlement type, marital status and belief in the reality of HIV/AIDS on these attitudes of students by attempting to model relationships using these variables. Knowing this will help policy makers and implementers adopt the right strategies, techniques and methods in dealing with students' attitude towards PLWHA; doing away with negative ones while reinforcing positive attitudes. Stigmatization and discrimination could be handled appropriately by using appropriate methods and strategies by taking specific demographic variables into consideration.

The study also intended to generate data which could serve as a database for future HIV/AIDS comparative and constructive studies in relation to demographic characteristics within the polytechnic and other related communities. It is hoped that information in the study will help in discussions pertaining to attitudinal and behavioral issues concerning PLWHA within the polytechnic community in particular, the nation as well as the international community in general.

1.1 Aim and objectives of study

This study was carried out with the aim of determining polytechnic students' attitude towards people living with HIV/AIDS. The specific objectives however were to:

i. To ascertain the effect of demographic characteristics of polytechnic students on attitudes in term of friendship, sex-mating and marriage towards PLWHA.
ii. To determine the effects of demographic elements of polytechnic students in terms of combined attitudes in relation to friendship, sex-mating and marriage towards people living with HIV/AIDS.

1.2 Hypotheses of study

In connection with the above objectives the following hypotheses were developed and tested:

H1: There is a positive/significant effective relationship between gender, age, religious denomination, settlement type, marital status and belief in reality of HIV and making friends with HIV infected person.
H2: There is a positive/significant effective relationship between gender, age, religious denomination, settlement types, marital status and belief in reality of HIV and sex-mating an HIV infected person
H3: There is a positive/significant effective relationship between gender, age, religious denomination, settlement types, marital status and belief in reality of HIV and marrying HIV infected person
H4: There is a positive/significant effective relationship between gender, age, religious denomination, settlement types, marital status and belief in reality of HIV and separating with HIV infected friend

H5: There is a positive/significant effective relationship between gender, age, religious denomination, settlement types, marital status and belief in reality of HIV and separating with HIV-infected sex-mate

H6: There is a positive/significant effective relationship between gender, age, religious denomination, settlement types, marital status and belief in reality of HIV and separating with HIV-infected spouse

H7: There is a positive/significant effective relationship between gender, age, religious denomination, settlement types, marital status and belief in reality of HIV and combined attitudes towards friendship, sex-mating and marriage of HIV-infected persons.

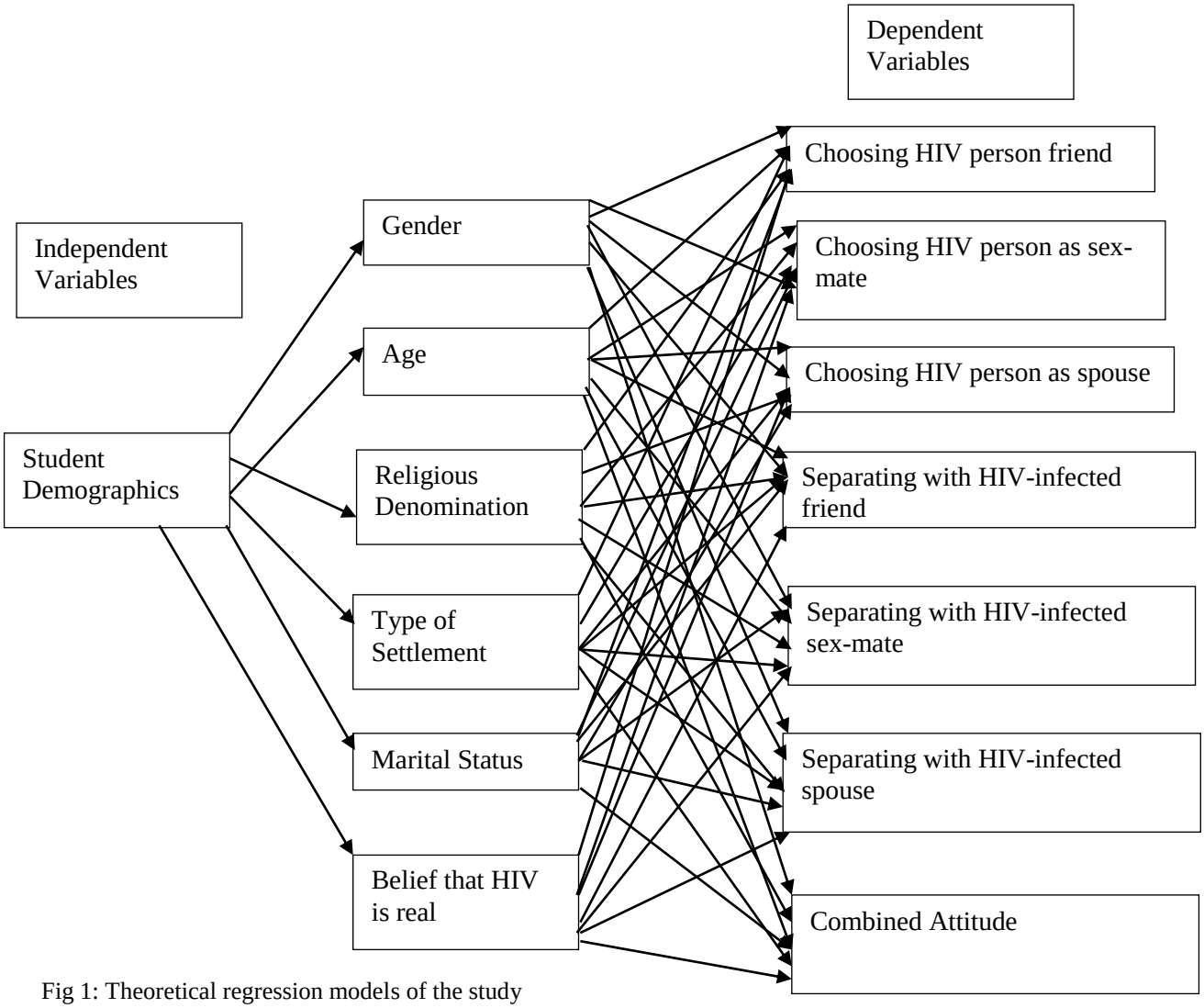

Fig 1: Theoretical regression models of the study

Below is an equation (1) representing a sample model of the seven-set theoretical models for the study.

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7X_7 \ldots\ldots\ldots (1)$$

Where B's = Constant,
Y = Dependent variable
X's = Independent variables
X_1 = Gender
X_2 = Age
X_3 = Religious denomination
X_4 = Type of settlement
X_5 = Marital status
X_6 = Belief that HIV is real

1.3 Study area

The research is a case study among Higher National Diploma (HND) students of Cape Coast Polytechnic in Ghana. The polytechnic is located about 7km from Cape Coast Castle, the former government seat of the then

Gold Coast, in the Central Region of Ghana. Students are made up of both residential and non-residential persons. The institution has an HND population of about 2800 from all the regions in Ghana.

2. Methodology

The research method employed was purely quantitative. The lottery method was used to select ten programs while stratified sampling method was employed to choose students from each class. A questionnaire was used as study instrument to solicit information from the sample. Only closed-ended questions were posed. 540 questionnaires were distributed with 86% rate of response. The Statistical Package for the Social Sciences (SPSS) version 17 was used for the analysis. Tables, percentages and frequencies were used to display data obtained. Regression statistical tool was employed to determine which demographic variables influenced the attitudes of students towards people living with HIV/AIDS. Standard logistic binomial regression was used to analyze the effect of gender, age, religious denomination, residential settlement, marital status and belief in the reality of HIV on attitude of choosing and separating with HIV persons as platonic friends, sex-mates and spouses. Standard multiple regression, was however used to analyze the effect of the independent variables on combined attitudes of the students.

3. Results and discussion

This section dilates on the demographics of respondents, results presentation, analyses and discussion.

3.1 Demographic characteristics of respondents

Out of a total of 466 respondents, 164 representing 35.2 percent were female while 302 representing 64.8 percent were male (table 1). Age ranged from 18 to 35 years. Mean age was 23.9; median 24 and modal 23 years (table 2). Three hundred and thirty-six of the respondents representing 72.1 percent were non-orthodox Christians, with the remaining 130 representing 27.9 percent, orthodox Christians (table 3). Majority of the respondents (51.8 percent) were urban dwellers, the remainder (48.2 percent) residing in rural areas (refer table 4).

Table 1: Distribution of gender of respondents

Gender	Frequency	Percentage (%)
Female	164	35.2
Male	305	64.8
Total	466	100

Table 2. Age distribution of respondents

Age	Frequency	Percentage (%)
< 20	83	17.8
21 – 25	248	53.3
26 – 30	117	25.1
> 30	18	3.8
Total	466	100

Table 3: Distribution by religious denomination

Denomination	Frequency	Percentage (%)
Non-orthodox	336	72.1
Christians		
Charismatic/Pentecostal	130	27.9
Total		100.00

Table 4: Distribution by residential settlement type

Settlement type	Frequency	Percentage (%)
Rural	225	48.2
Urban	241	51.8
Total		

Most of the respondents lived in the Central Region (29.9 percent) of Ghana. The Upper East Region recorded the minimum percentage of respondents (refer table 5). Majority of the respondents were also single (85.6 percent) while 14.4 percent representing minority were married (refer table 6).

Table 5: Distribution by geographic region

Region	Frequency	Percentage (%)
Upper East	15	3.2
Upper West	29	6.2
Northern	41	8.7
Bono-Ahafo	20	4.3
Ashanti	17	3.6
Volta	38	8.1
Western	91	19.4
Eastern	40	8.5
Greater Accra	49	10.4
Central	136	27.6
Total	466	100.0

Table 6: Distribution by marital status

Status	Frequency	Percentage (%)
Single	399	85.6
Married	67	14.4
Total	466	100.0

About 35 percent of respondents were level 100 students; 35.6 percent level 200 and 29.5 percent level 300 (table 7). Ten academic departments/programmes were considered, in three academic schools, the only schools in the institution. Four departments were from School of Engineering (SOE), two from School of Business Studies (SOBS) and four from School of Applied Arts and Science (SAAS) (refer table 8). Majority of respondents (18.8 percent) were from Marketing Department while Statistics Department had the least of 2.6 percent. Majority of respondents were from School of Engineering (40.8 percent) while the least, 25.5 percent, were School of Applied Arts and Science (refer table 9).

Table 7: Distribution by level in institution

Level	Frequency	Percentage (%)
100	162	34.9
200	165	35.6
300	139	29.5
Total	466	100.0

Table 8: Distribution of respondents by department

Department	Frequency	Percentage (%)
Accountancy (SOBS)	67	14.3
Building Technology (SOE)	42	9.0
Catering (SOAAS)	39	8.3
Civil Engineering (SOE)	54	11.5
Electrical Engineering (SOE)	39	8.3
Fashion (SOAAS)	16	3.4
Marketing (SOBS)	88	18.8
Mechanical Engineering (SOE)	47	10.0
Statistics (SOAAS)	12	2.6
Tourism (SOAAS)	62	13.2
Total	466	100.0

Table 9: Distribution by school

School	Frequency	Percent (%)
Business	156	33.5
Engineering	189	40.6
Applied Arts and Science	121	25.9
Total	466	100.0

From table 10, about 91 percent of the respondents believed the HIV is real while 8.6 percent did not. This few may be due to ignorance and uncertainty. This is in agreement with the findings of Woode & Ahorlu (2005) where between 1 and 27 percent of students from Accra Polytechnic in Ghana suffered from ignorance and uncertainty about basic issues concerning HIV/AIDS. For example, their study also showed that between 2 and 20 percent did not know much about the mode of transmission of the epidemic. They also indicated that between 1 and 14 percent of the students were also not sure about the mode of transmission. Woode & Ahorlu (2005) therefore recommended stepping up awareness creation of knowledge about HIV/AIDS. It is also of the view of this author that intensifying awareness creation could help reduce the current prevalence rate of 0.8 percent in Ghana (UNAIDS, 2014) to nullity in the next few years.

Table 10: Belief in the reality of HIV

Response	Frequency	Percent (%)
No	40	8.6
Yes	426	91.4
Total	466	100.0

3.2 Regression Analyses

Six categorical independent variables and one continuous variable were considered. The categorical variables were awareness of HIV (belief that HIV is real), religious denomination, type of residential settlement, marital status and gender. The continuous variable was age. The dependent variables, considered each separately were seven. These are choosing HIV person as friend, choosing HIV person as sex-mate, choosing HIV person spouse, separating with friend when found to be HIV positive, separating with sex-mate when found to be HIV positive and separating with spouse when found to be HIV positive.

The final and seventh dependent variable was a collapsed or combined form of the first six dependent variables. Binary Logistic Regression (Standard) was used for the first six while Standard Multiple Regression was used for the seventh dependent variable during the analyses. The Hosmer and Lemeshow Goodness of fit Test was used to determine the model fit for the first six dependent variables. According to Pallant (2005) the Hosmer and Lemeshow test is the most reliable test of model fit available in SPSS. The significance level for the analysis was 0.05.

3.2.1 Choosing HIV person as friend

The Hosmer and Lemeshow test gave 8 degrees of freedom with Chi-square statistic of 3.259 with significance value of 0.917 indicating support for the model (Pallant, 2005). The -2 log likelihood was 565.663. The Cox and Snell and Nagelkerke R square value for the model were 0.026 and 0.037 respectively. Thus between 2.6 and 3.7 percent of the variability was explained by the set of independent variables. The model correctly classified 67.0 percent cases overall, an improvement from 66.1 percent. The percentage accuracy in classification (PAC) was therefore 67 percent.

Table 11: Equation table for the model on choosing HIV person as a friend

Independent Variable	B	S.E	Wald	Lf	Sig	Exp B.	Lower	Upper
Gender	-0.003	.217	.000	1	0.987	.997	.651	1.525
Age	-0.000	.000	.000	1	.984	.999	.938	1.065
Religion	-0.002	.230	.000	1	.994	.998	.636	1.567
Residential Type	+0.031	.208	.023	1	.880	1.032	.687	1.550
Marital status	-0.559	.303	3.300	1	.049	.576	.318	1.044
Belief in HIV	-0.949	.347	7.497	1	.006	.387	.196	.764
Constant	0.841	.797	1.114	1	.291	2.318	-	-

From table 11, age had no effect on the attitude of choosing HIV-positive person as a friend. The effects of gender and religion were very minimal. Though settlement type had effect on the model it was not significant.

The effect of marital status and belief in the reality of HIV were significant at 0.049 and 0.006 significance value respectively. The effect of both marital status and belief in the reality of HIV were negative. This means that married persons would not chose HIV person as platonic friend and that students who have belief that HIV is real would likewise not choose HIV person as platonic friend. On the other hand people living in urban settlements would rather choose HIV persons as platonic friends. The odds ratios of all the independent variables at $p < 0.05$ were statistically insignificant.

3.2.2 Choosing HIV person as sex-mate

At p less than 0.05, the chi-square statistic obtained was 3.804 at 8 degrees of freedom and a significance value of 0.874, showing support for the model using the Hosmer and Lemeshow test of good fit. The -2 log likelihood was 558.106. Between 2.6 and 3.7 percent of the variability were explained by the set of independent variables classified. This is an improvement from 67.5 percent, an increase of 0.2 percent. Thus the PAC was 67.7 percent.

Table 12: Equation table for the model on choosing HIV person as a sex-mate

Variable independent	B	S.E	Wald	Lf	Sig	Exp. (B)	Lower	Upper
Gender	-.572	.227	6.313	1	0.012	.564	.361	.881
Age	-.045	.033	1.837	1	0.175	.956	.895	1.020
Religion	.270	.227	1.413	1	0.235	1.310	.839	2.044
Residential type	-.313	.209	2.241	1	0.134	.731	.486	1.102
Marital status	+0131	.316	0.171	1	0.679	1.140	.631	2.118
Belief in HIV	-.469	.389	1.450	1	0.228	.626	.292	1.342
Constant	.633	.820	.596	1	0.440	1.884	-	-

The results show that though age, religion, settlement type, marital status and believe in the reality of HIV contributed to the model, these contributions were not significant. However, gender had a significant effect on the model at a significance value of 0.012. The direction of gender as a contributory factor to the model was negative. This implies that females are more likely to choose HIV persons as sex-mates than males. The odds ratio of gender in the model was also significant though minimal, between 0.36 and 0.88 percent. The direction of age to the model was negative. Since age was a continuous variable this implies that increase in age has a negative effect on the model. Thus those with higher age would not choose HIV infected persons as sex mate.

The direction of religion was positive. This means that non-orthodox Christians (Pentecostals and charismatic) would not choose HIV infected persons as sex-mates. The direction of settlement type was also negative. This implies that people living in urban settlements would not opt to have HIV infected person as sex-mate. Marriage status also had negative effect on attitude of students. It can therefore be inferred that married persons would not desire to have HIV infected persons as sex-mates. Students' belief that HIV is real gave a negative direction to the model. Thus believing that HIV is real would not encourage a person to have an HIV positive person as a sex-mate.

The odds of age, religion, type of residential settlement, marital status and belief in HIV were each not statistically significant in relation to choosing HIV person as sex-mate, all other factors being equal (table 12).

3.2.3 Choosing HIV person as spouse

The Hosmer and Lemeshow goodness of fit test with 8 degrees of freedom gave significance value and chi-square statistic as 0.091 and 13.662 respectively thus supporting the model. The R^2 value was between 9 and 17.3 percent. Thus between 9 and 17.3 percent of the variability is explained by the set of independent variables. Negative 2 log likelihood was 276.224. Percentage accuracy in classification was 87.9 percent with no increase.

Table 13 shows the characteristics of the variables in the model equation. Gender and belief in the reality of HIV had minimal effect on the model. Though Age and marital status had effect these was insignificant. Religion and

Residential type had significant effect on the model with 0.011 and 0.000 significant values respectively. Thus residential type had the strongest while age had the weakest significant effect respectively on the model.

The odds of religious denomination and settlement type on students' willingness to marry an HIV person were also significant. While religious denomination had negative effect on attitude, settlement type had positive influence. This implies that, orthodox Christians have less positive attitude than Pentecostal and charismatic Christians. Also urban dwellers have more positive attitude than rural counterparts when it comes to marrying persons with HIV.

Table 13: Equation table for the model on choosing HIV infected person as spouse

	B	S.E	Wald	Df	Sig	Exp. (B)	Lower	Upper
Gender	-.005	.336	.000	1	.988	.995	.515	1.922
Age	.014	0.49	.081	1	.775	1.014	.922	1.115
Religious denomination.	-.810	.318	6.471	1	.011	.445	.238	.830
Settlement type	1.993	.425	22.007	1	.000	7.340	3.192	16.882
Marital status	.480	.487	.971	1	.324	1.616	.622	4.200
Belief in HIV	-.045	.528	.000	1	.932	.956	.339	2.691
Constant	-3.574	1.500	5.679	1	.017	.028	-	-

3.2.4 Separating with platonic friend when found with HIV

At p = 0.05, N = 466, df = 8, the Hosmer and Lemeshow test indicated that the line of good fit for the model was significant with significant level of 0.264 (greater than 0.05) with $\mathcal{X}^2$ value of 12.016. At -2 log likelihood value of 584.751, between 14 and 19 percent of the variability was explained by the set of variables. PAC was 64.2 percent, an increase of 0.3 percent.

Table 14 shows the features of the independent variables in the model equation. Religious denomination made the most contribution, followed by residential type, belief in reality of HIV, marital status, age and gender, in that order. However, only the effect of religion was significant at 0.041 significance value.

Table 14: Equation table for the model on Separating with friend when found with HIV

Independent Variables	B	S.E.	Wald	df	Sig	Exp. (B)	Lower	Upper
Gender	-.062	.213	0.085	1	.771	.904	.619	1.427
Age	-.014	.032	0.192	1	.661	.986	.926	1.050
Religious denomination	.559	.222	5.620	1	0.041	1.932	1.106	3.913
Residential type	.249	.203	1.508	1	.219	1.283	.862	1.910
Marital status	-.265	.316	0.707	1	.401	.767	.413	1.424
Belief in HIV	-.353	.374	0.891	1	.345	.703	338	1.463
Constant	-.385	.788	0.238	1	.625	.680	-	-

The effects of religion and residential type were positive. This means that orthodox Christians would separate with their platonic friends rather than Pentecostal and charismatic Christians. Urban student dwellers are also more likely to do same. Gender, age, marital status and belief in the reality of HIV, on the other hand, had negative effects on the model. This implies that male students are unlikely to separate with their platonic friends who would be infected with the virus. Married students (assuming married) and those who believe in the reality of HIV will do same.

The odds of religious denomination at 1.932 were significant on the attitude of separating with a platonic friend when found to be infected with HIV. The odds of the other variables however were found to be insignificant.

3.2.5 Separating with sex-mate when found HIV-positive

The Hosmer and Lemeshow test of goodness fit yielded Chi-square statistic of 10.668 at 8 degrees of freedom with significance value of 0.221, thus showing support of the variables to the model. Cox and Snell R^2 and Nagelkerke R^2 values were 0.02 and 0.027 respectively indicating that between 2 percent and 2.7 percent of the variability were explained by the set of variables. The -2 log likelihood value was 626.171. Percentage accuracy in classification (PAC) was 55.5 from 51.5 percent.

Table 15: Equation table for the model on Separating with sex-mate when found with HIV

Independent Variable	B	S.E	Wald	Df	Sig	Exp (B)	Lower	Upper
Gender	.289	.205	1.982	1	.159	1.335	.893	1.998
Age	.013	.031	.191	1	.662	1.013	.954	1.076
Religion	-.226	.217	1.087	1	.297	.798	.522	1.220
Settlement	.119	.195	.373	1	.541	1.127	.768	1.652
Marital Status	-.009	.295	.001	1	.975	.991	.555	1.767
Belief in HIV	.857	.364	5.531	1	.019	2.356	1.154	4.813
Constant	-.426	.758	.316	1	.574	.653	-	-

Table 15 shows that belief in the reality of HIV contributed most to the equation; followed by gender, whilst marital status contributed almost ineffectively (Wald value of 0.001). Though gender, age, religion and type of settlement contributed effectively to the model, they were not significant. Belief that HIV is real gave a significant effect to the model (0.019).

The direction of gender to the model was positive. This means that males are more likely to separate with sex-mates than females. The direction of age was also positive. This implies that as age increases, students would rather separate with their sex-mates. Religion contributed negatively to the model. This can be deduced that orthodox Christian students would not separate with their sex mates as against Pentecostal and charismatic Christian counterparts. Type of settlement showed a positive direction. This can be inferred that urban settlers would not separate with their sex-mates if found infected with HIV. Marital status had a negative effect on the model. This means that married people would not separate with their sex mates when found HIV positive. Belief that HIV is real had a positive effect on the model. Thus students who believe that HIV is real would separate with their sex-mate when found infected with the virus.

The odds ratio was highest for belief that HIV is real, than gender, settlement type, age, marital status and religious denomination, in that order. However only believe that HIV is real gave statistically significant odds to separating with sex-mate when found HIV positive at $p < 0.05$, all other factors being equal. The rest of the odds were statistically insignificant.

3.2.6 Separating with spouse when found HIV-positive

The attitude of students toward spouse when found to be infected with HIV was also analyzed. Here the assumption was that students were married. The Hosmer and Lemeshow goodness of fit test gave a chi-square value of 7.529, at df of 8 and significance value of 0.481 thus indicating support for the model. The -2 log likelihood value was 582.205 with the model explaining between 3.1 and 4.2 percent of the independent variables. The model correctly classified 63.3 percent case overall from 62.8 percent. The characteristics of the independent variables in the model equation are shown in table 16.

Table 16: Equation table for the model on separating with spouse separation as dependent variable

Independent Variable	B	S.E.	Wald	Df	Sig.	Exp. (B)	Lower	Upper
Gender	.166	.212	0.614	1	.433	1.181	.779	1.789
Age	-.020	.032	.400	1	.527	.980	.921	1.043
Religion	.538	.221	5.937	1	.015	1.712	1.11	2.639
Residential type	-.038	.203	.035	1	.852	.963	.647	1.433
Marital status	.192	.302	.404	1	.525	1.212	.670	2.193
Belief in HIV	.859	.345	6.209	1	.013	2.236	1.201	4.638
Constant	-.347	.782	.198	1	.657	.657	-	-

The variable that gave the most contribution to the equation was belief in the reality of HIV, followed by religion, gender, marital status, age, and residential type in that order. However, only the contribution made by belief in the reality of HIV and religious denomination were significant, 0013 and0.015 respectively. The contribution made by gender was positive indicating that male respondent are more likely to separate with their spouse if found with the HIV virus. The direction of religious denomination to the model was also positive. Thus orthodox Christians would rather divorce their spouse when found infected with HIV virus.

The effect of marital status was also positive. This means that married respondents (assuming married) would separate with their spouse if infected with the virus. Belief in the reality of HIV also had a positive effect on the model. This implies that those who belief that HIV is real would rather separate with their spouse if infected with HIV. Age and residential type had negative effects on the model. The implication is that older students are more likely to separate with their spouse (when married) when infected with the virus. Urban student-dwellers are more likely to call for divorce than female counterparts when their spouse becomes infected with HIV.

Though the odds of the various variables on the attitude of separation of spouse were valuable, only those of religion and belief in the reality of HIV were significant at between 1.712 and 2.360 and between 1.201 and 4.638 respectively.

3.2.7 Combined (general) attitude toward people living with HIV

The general attitude of students was a combination of all the six attitudes that were considered. Thus making platonic friendship, sex-mating and marriage were considered positive attitudes while separations of friends, sex-mating and marriage were considered negative attitudes. Standard multiple regression was used to analyze the data.

Table 17 indicates the coefficients of regression of the independent variables. According to the table, age, religious denomination and marital status had effect on the model though their effects were not significant. This is in agreement with the findings of Woode & Ahorlu (2005) that age had no significant effect in explaining the attitude of students towards HIV. At 5% significance level, gender, residential type and belief that HIV is real had significance effects on general attitude of students toward HIV infected persons. While the effect of gender and belief in the reality of HIV were positive, type of residential settlement was negative. This implies that males have more positive attitude towards HIV persons than females. Also students who believe that HIV is real have more positive attitude towards people infected with the virus. However rural dwellers have more positive attitude towards HIV infected persons than the urban counterparts.

With sample population 466, the R^2 square value obtained for the study was 30.12 percent. Thus about 30 percent of variations in the attitude of students towards HIV were explained by gender, age, religion, settlement type, marital status, and belief that HIV is real. At p less than 5, the F statistic was 78.36 at 0.012 significance value. Thus the general model for predicting the general attitude of students in terms of platonic, sex-mating and marriage of HIV infected persons was significant.

Table 17: Coefficients of independent variables of general attitude of students towards HIV persons

Model	Standardized Coefficients	Std Error	Beta	T	Sig
Constant	2.533	.511	-	4.952	.000
Gender	0.313	.136	0.112	1.744	.025
Age	-0.0087	.020	-0.022	-.417	.677
Religious Denomination	-0.492	.144	-0.013	-.273	.785
Settlement type	-.215	.130	-0.127	-1.659	.043
Marital status	-.127	.198	-0.033	-.639	.523
Belief in HIV	.655	.228	0.135	2.878	.004

Belief in the reality of HIV made the strongest unique contribution to explaining the dependent variable, when the variances explained by all other variables in the model were controlled. The next largest contributing variables were settlement type, gender, marital status, age and religious denomination in that order.

In terms of direction, gender and belief in the reality of HIV had general positive effects; while religious denomination, settlement type and marital status were negative. This implies that males, and students who believe that HIV is real, have more general positive attitude towards HIV-positive persons than females and those who do not believe that JHIV is real. Conversely, rural settlers as well as Pentecostal and charismatic Christians have more general positive attitude towards HIV positive persons than urban and orthodox Christians.

4. Conclusion and recommendations

The study sought to determine the effects of gender, age, religious denomination, settlement type, marital status and belief in the reality of HIV, as independent variables; on choosing HIV person as friend, choosing HIV person as sex-mate, choosing HIV person as spouse, separating with HIV person as friend, separating with HIV person as sex-mate and separating with HIV person in spousal relationship, as dependent variables. It further assessed how significant these effects are on each of the dependent variables.

The study found that only residential type, marital status and belief in reality of HIV had effect on the attitude of choosing HIV person as a friend. However, only the effect of belief in HIV person was significant. It was also found that all the independent variables had effect on the attitude of choosing HIV person as a sex-mate. Nevertheless, only gender had significant effect on the dependent variable.

It was revealed that all the independent variables had effect on choosing HIV person as spouse except gender and belief in the reality of HIV. Nevertheless religious denomination and settlement had significant effects. But when it came to separating with HIV persons as platonic friend all independent variables had influence though gender was very minimal. The independent variable that had significant effect was religion.

It was observed from the analysis that all independent variables had effect on separating with HIV sex-mate. However, only belief in reality of HIV had significant effect on the dependent variable. Though, all independent variables had effect on separating with HIV spouse, only religion and belief in the reality of HIV were significant.

On general attitude towards persons living with HIV in terms of platonic friendly, sex-mating and spousal relationship, it was identified from the study that all independent variables had effect on the dependent variable. Belief in the reality of HIV had the strongest effect, followed by settlement type and gender in that order. These three variables had significant effect on the model. Those with least insignificant effect were religious denomination, age and marital status in that order. It must be noted that age also had no significant effect in any of the individual attitudes investigated. Though it had some effects, they very were insignificant. This is in agreement with the findings of Woode and Ahorlu (2005) that age had no significant effect on the attitude of students towards persons living with HIV.

The fight against HIV needs educational means and programs. According to Woode and Ahorlu (2005) HIV sensitization programs through workshops is one of the surest ways of combating the disease. Educating people to understand issues to deal with wrong perceptions (Achio, 2007) could also help eliminate the epidemic. However this study has shown that the direction of educational campaigns previously adopted might have been wrongly focused.

People are being over sympathetic to HIV victims and this could be a dangerous trend. For example, some respondents were prepared to have sexual intercourse with HIV persons though they are not married to them. The use of condom appears to blindfold such persons, thinking that they could protect themselves and prevent being infected with the virus (Achio, 2007). This is a very dangerous enterprise. Condoms are not fool-proof devices. And using condom is neither a fool proof mechanism. Education must therefore emphasize on abstinence of sex among unmarried persons (Woode and Ahorlu, 2005) and abstinence must be absolute in order to totally win the HIV/AIDS battle.

Several factors must be considered when designing HIV educational programs. Factors such as gender, religious denomination, settlement type, marital status and belief in the reality of HIV should be seriously taken into consideration. Since many people are aware of the disease (Achio, 2007) and also that believe HIV is real; a more concerted approach must be used to deal with the spread of the disease.

Using churches could go a long way to deal with the matter. Demonstrations and dramas in churches and schools is one of the best strategies to tackle the spread of the virus. Involving people infected with AIDS in such campaigns, according to the study, will help people appreciate and acknowledge the reality of HIV/AIDS and thus dissuade them to involve with indiscriminate sexual activities.

On the other hand, the sympathy and understanding majority of the students have on HIV persons in terms of separating relationship with them is a good sign of reduction of stigmatization and discrimination against persons living with HIV. Educational campaigns and strategies that are holistic and multiple-targeting, to address the HIV dilemma, is therefore the best means by which the pandemic could be reduced to the minimum if not eradicated.

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