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Knowledge, Attitudes, and Behaviours of Adults (15-49 Years) towards HIV/AIDS in Ghana

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Abstract

The adult population (15-49 years) are the most productive and yet the most vulnerable to HIV infections in Ghana. A phenomenon that threatens the socio-economic growth of the country and the survival of its people. Poor knowledge, ill-informed attitudes, and risky lifestyles are the key factors that hinder the prevention of HIV spread among adults. The study's aim was to explore knowledge, attitudes, and risky behaviours among adults which hinder the prevention of HIV/AIDS in Ghana. A case-control study of 362 adults was conducted in the Ahafo and Northern regions of Ghana in 2020. Descriptive and inferential statistics were significant at 1% and 5%. Results indicated that the majority of adults in Ghana are sexually active with limited education but high knowledge of HIV/AIDS. The study revealed significant levels of association between HIV infections and age, sex, marital status, sex with multiple partners, use of the condom, sex for money, sexually transmitted infections, alcohol or drug abuse, personal income, access to places where sex is traded, and migration. The study concludes that both cases and controls generally had good knowledge regarding HIV/AIDS but show poor attitudes towards PLHIV and also engaged in risky behaviours that might predispose others to HIV infections. Findings also highlight the need for culturally adaptive and age-specific HIV education for adults across all regions. Identified misconceptions on HIV/AIDS, poor attitudes of adults towards PLHIV, and risky behaviours of adults regarding HIV/AIDS need specific and targeted education towards behavioural change.

Keywords*: Attitudes, Adults, Behaviours, HIV/AIDS, Knowledge.*

Introduction

Following the first report of HIV/AIDS in 1981, the disease has been one of the most dreaded global health challenges, affecting over 70 million people and claiming about 35 million lives [1]. Joint United Nations Programme on HIV/AIDS (UNAIDS) puts 2018 global estimates of people living with the virus at 37.9 million. Out of this number, 36.2 million are adults, while people who have died from HIV/AIDS-related illnesses since the beginning of the epidemic are 770,000 [2]. Developing countries have the highest number of HIV/AIDS infections in the whole world due to the poor state of their health facilities and limited specialization [1]. For example, Sub-Saharan Africa alone has 25.6 million infections. Though statistics indicate a declining rate of HIV/AIDS infections globally, the virus has disrupted many economies, with developing countries suffering the most impact [2]. In Sub-Saharan Africa, Ghana is among the first 20 countries with HIV/AIDS prevalence, with South Africa as the leading African country with HIV/AIDS virus.

Though new infections are sharply declining, a myriad of challenges still exists that make it difficult to control the spread of the virus [3].

HIV/IADS affects people mostly in their productive years (15-49 years), with several impacts on families, communities, and the infected individuals' economies. Apart from the health, the stigmatization of people living with the virus makes it difficult for infected persons to contribute substantially to the development of the economy of their countries.

Irrespective of the global decline in HIV/AIDS cases, Ghana's new infections rouse in 2018, with adult HIV/AIDS prevalent rate estimated at 1.69 percent [4]. While the Northern region has the lowest prevalence of HIV, the Ahafo region recorded the highest prevalence of HIV/AIDS. What remains uncertain are factors contributing to the spread of the disease in Ghana. This has raised concerns about male transmissions and how the country is responding to break the transmission chain of HIV/AIDS.

This study, therefore, examines in detail the factors accounting for the spread of the HIV/AIDS virus in Ghana. This is because HIV/AIDS continues to rise in developing countries with an increase in new infections [5]. This study is intended to uncover the factors responsible for the rising levels of HIV/AIDS in Ghana. The results are expected to inform the Ghana Health Service on nature and factors causing the rise in infections and tackle it.

The study further examines the risk factors associated with the continued HIV infections and accounts for the reasons in regional variations. It proposes appropriate intervention measures to curb the trend in Ghana. This study would help medical practitioners in tackling the root challenges leading to the spread of the virus. Therefore, it would impact the strategies adopted by the health professionals in dealing with the virus and serve as a springboard for further studies in HIV/AIDS incidence in the country.

The fact that in Ghana, many factors predispose adults to the risk of HIV/AIDS while others living with HIV infections do not have access to prevention, treatment, and care services [6]. Challenges of containing the HIV/AIDS virus continue to exist despite efforts to stop the virus. The emergence of Sustainable Development Goals, especially goal 3, has enjoined the world to promote global health and end HIV/AIDS by 2030. Ghana falls short of many targets [7] as new HIV infections remain high among adult populations. In spite of the advancement made to combat HIV/AIDS, poor knowledge, bad attitudes, and irresponsible behaviours continue to thwart efforts in national and global health promotion. This study, therefore, aims to explore the knowledge, attitudes, and behaviours of adults towards understanding the rising levels of new HIV/AIDS infections, causal factors, and the nature of spread in Ghana. It also aims to contribute to global health discourse by advancing knowledge in factors hindering the prevention of HIV/AIDS in Ghana.

Materials and methods

This study used a case-control study design to compare how frequently the exposure to risk factors are present in each group. This helps to determine the relationship between the risk factors and HIV infections (status) in Ghana. Quantitative methods were used for data collection and analysis to determine the prevalence of risk factors of HIV amongst the adult population of 15 to 49 years old in the Ahafo and Northern regions of Ghana.

The choice of the Ahafo region and Northern region as study areas was because the two regions recorded the highest (2.66%) and lowest (0.40%) HIV prevalence rates respectively in 2018 [8]. The Ahafo and Northern regions are part of the 16 administrative regions of Ghana. Estimates in 2018 put new HIV infections for all ages at 20,000, with about 14,000 HIV-related deaths in Ghana. These statistics supported the choice of the two regions as case and control for studying HIV infections in Ghana.

The design comprised of comparable case (adult HIV positive persons) and control (adult HIV negative persons) determined by the inclusion and exclusion criteria. A total of 362 participants from both the Ahafo region (155

cases, 155 controls) and Northern region (26 cases, controls 26) were randomly selected using a simple random selection approach given regional HIV differences in the prevalence. The sample size of the study was determined using the following formula.

$$n = (\frac{r+1}{r}) \frac{(\bar{p})(1-\bar{p})(Z_{\beta} + Z_{\alpha/2})^2}{(p_1 - p_2)^2}$$

The sample size of n=362 (181 cases, 181 controls) is determined at 80% power, ($Z\beta$ = 0.84), 0.05 significance level ($Z\alpha$=1.96), an equal number of cases and controls (r=1), odds of 2 or greater, and take the proportion of cases exposed in the control group at 20%. The average proportion exposed was taken at (0.33 + 0.20)/2 = 0.265.

The sources of cases were identified from Tano South district in the Ahafo region and Karaga district in the Northern region, where sampling frame was provided by the Ghana Health Service from Anti-Retroviral Treatment (ART) centres upon fulfilling all the ethical requirements. Only cases which met inclusion criteria were allowed to participate in the research. The inclusion criteria for this research were being a client at a selected ART centre within the age range of 15–49 years and a resident of the study region in the last three months to the date of enrolment on the study. Cases were persons who became HIV positive and have been recorded at selected hospitals (ART centres), while controls were randomly selected from among persons who remained HIV negative evidenced at the same selected health facilities. Data were then collected within this population, which was cleaned, analysed, and interpreted using SPSS.Statistics. v21.

Results and Discussion

This section analyses and discusses the results of the study. The results are presented in tables. The investigators provide comparisons and juxtaposition to draw meaning from the results presented for the sake of advancement in knowledge, societal transformation, and human progress in the HIV/AIDS pandemic. The findings of the study are presented in light of literature and the contemporary health situation in Ghana. The aim is to provide relevant knowledge in understanding the spread of HIV/AIDS among adults. The thoughts generated in this discussion will help draw conclusions for the study.

Demographic Characteristics

Results from Table 1 indicate that the largest age group of respondents that were HIV positive were in the middle age adult groups (25-39 years). This group represents 45.2 percent of the respondents, followed by the older adults (aged 40-49 years, representing 43% of respondents) infected with HIV. Also, the largest age group of respondents without HIV were in middle-aged adults of (25-39 years, representing 63.6%), while the younger age group of 15-24 years were the second among HIV-negative respondents (21.5%). Sadly, the majority of the respondents, HIV carriers (66.3%), were unemployed. Again, about 67.4% of the respondents were HIV-negative who were in full-time employment. The majority of HIV carriers (60.2%) were urban residents, while 39.8% of HIV carriers were rural residents. Table 1 shows the results of the demographic and socio-cultural dynamics of the respondents, which could influence their knowledge level in HIV awareness and or safe sex practice. The study estimated the association between each demographic and HIV Status of respondents and found some variables to be statistically significant at levels 1% and 5%. These variables are age group, occupational status, educational status, and marital status of respondents. Again, respondent's place of residence, the first source of HIV information, sex with multiple partners, condom usage at all times, sex for money, alcohol and drugs status, and awareness of places where sex is traded were assessed and reported (Table 2).

The study asserts that a relationship exists between the age group of respondents and HIV infection at 1% significant level. This implies

that the older one gets, the high the risk of HIV. This is established by the increase in the significant level of association with an increase in age (Table 2). The occupational status of the respondents was also significant at 1% level relating to HIV Status. The analysis further revealed a significant positive level at 1%, estimating the relationship between the educational status of the respondents, marital status, and place of residence with HIV Status.

Table 1. Respondents Demographic Information

Respondents Demographic Information	**Responses**	**HIV Status**			
		Negative		**Positive**	
		N	**%**	**N**	**%**
Respondent's District	Bechem	155	85.6%	155	85.6%
	Karaga	26	14.4%	26	14.4%
Age Group of Adults Respondents	15 -24 years (Young)	39	21.5%	20	11.1%
	25 - 39 years (Middle)	115	63.6%	83	45.9%
	40 - 49 years (Older)	27	14.9%	78	43.0%
Sex of Respondent	Female	125	69.1%	136	75.1%
	Male	56	30.9%	45	24.9%
Category of Respondent (Cases)	Bechem (Ahafo)				
	Old	-	-	123	79.4%
	New	-	-	32	20.6%
	Karaga (Northern)				
	Old	-	-	25	96.2%
	New	-	-	1	3.8%
Occupational Status of Respondent	Full – Time	122	67.4%	25	13.8%
	Part – Time	42	23.2%	36	19.9%
	Unemployed	17	9.3%	120	66.3%
Educational Status of Respondent	University	30	16.60%	10	5.50%
	Senior high school	44	24.30%	16	8.80%
	Junior high school	56	30.90%	48	26.50%
	Primary school Education	28	15.50%	47	26.00%
	No formal Education	23	12.7%	60	33.10%
Marital Status of Respondents	Cohabiting	2	1.1%	13	7.2%
	Divorced	1	.6%	19	10.5%
	Married	114	63.0%	77	42.5%
	Never married	12	6.6%	3	1.7%
	Separated	1	.6%	2	1.1%
	Single	51	28.2%	53	29.3%
	Widow	0	0.0%	14	7.7%
Respondents Place of Residence	Urban	75	41.4%	109	60.2%
	Rural	1106	58.6%	72	39.8%

Source**:** Author's Field Survey, 2020

HIV Knowledge, Attitude and Behaviours

This section discusses the results of the investigation on knowledge, attitudes, and behaviours of respondents towards HIV/AIDS in Ghana. The findings revealed a plethora of factors that contribute to knowledge, attitudes,

and behaviours on HIV/AIDS. From the study, the key sources of information on HIV remain principally the traditional sources of information such as; Radio (51.9% with HIV; 34.3% without HIV), Television (23.2% with HIV; 19.3% without HIV), Health care systems (15.5 % with HIV; 7.7 % without HIV) and friends (30.4% with HIV; 1.97% without HIV). Albeit these factors vary between groups, sources of information on HIV remain traditional. It appears as though social media, which is trending and easy to reach, is not being utilized in the dissemination of information on HIV/AIDS.

The findings of this study corroborate the findings of [9], who argued that HIV/AIDS information sharing is strictly through the main media. The implications for this trend could be linked to the volatility nature of social media, such that information usually exists without controls. This could expose some HIV/AIDS patients with the consequences of stigmatization and stereotyping. This finding, however contradicts [10], which reported adaptation of social media to the reportage of HIV/AIDS information. According to them, users of social media for HIV information have found the system useful though efforts need to be kept in place to overcome undue exposure of the patients to the general public. Generally, this study also posits that there exists an association between access to a health facility and HIV infections. Indicatively, one's risks of infection reduce with access to health facilities. Findings also revealed high percentages (over 90%) of both infected persons and non-infected persons have knowledge of HIV/AIDS. Though this trend indicates efforts being made under HIV sensitizations programmes, respondents with HIV infection appear to have detailed knowledge on the virus than those without infections. On the whole, many of persons without infections only indicated general knowledge and awareness without a deeper understanding of how to protect themselves adequately from the virus. Table 2 confirms the assertions by [11, 12] that sensitization programmes must target some behavioural change with efforts to contain HIV/AIDS virus. While acknowledging that such behavioural change does not come in handy, efforts need to be made to dispel prejudices about HIV/AIDS. This will pave the way for proper education, targeting HIV information sharing and general behavioural change towards HIV/AIDS and advancing all people's progress.

Like many traditional medical types of research, the current study found that unprotected sexual intercourse is the main cause of HIV infections. Apart from this, the use of infected objects and blood transfusion with infected persons were identified as causes of the spread of HIV infections. Besides, respondents also identified the following symptoms associated with HIV infections; diarrhoea, fever, headache, rash, and weight loss. About 91% of HIV carriers and 82.3% of respondents without HIV indicated that there is HIV treatment available in Ghana. Although this does not mean a cure for the disease, the spread of fake information has become a daunting task to deal with in the current dispensation where social media is much patronized, and the proliferation of spiritual herbalists and healers remained unchecked in Ghana.

Table 2. Relationship/Association between Demographics and HIV Status

Respondents Demographic Information	Responses	HIV Status				χ2	P-value
		Negative		Positive			
		N	%	N	%		
District	Bechem	155	85.60%	155	85.60%	0.00	1.000
	Karaga	26	14.40%	26	14.40%		
Age group (Years)	15 – 24 (Younger)	39	21.60%	20	11.10%	23.24	0.015**
	25 - 39 (Middle)	115	63.60%	83	45.90%	55.70	0.000***
	40 - 49 (Older)	27	14.80%	78	43.10%	49.10	0.000***
Sex	Female	125	69.10%	136	75.10%	1.66	0.197
	Male	56	30.90%	45	24.90%		
Occupational Status	Full – Time	122	67.40%	115	63.50%	23.75	0.000***
	Part – Time	2	1.10%	26	14.40%		
	Unemployed	57	31.50%	40	22.10%		
Educational Status	University	30	16.60%	10	5.50%	45.93	0.000***
	Senior high school	44	24.30%	16	8.80%		
	Junior high school	56	30.90%	48	26.50%		
	Primary school	28	15.50%	47	26.00%		
	No formal Education	23	12.70%	60	33.10%		
Marital Status	Cohabiting	2	1.10%	13	7.20%	51.21	0.000***
	Divorced	1	0.60%	19	10.50%		
	Married	114	63.00%	77	42.50%		
	Never married	12	6.60%	3	1.70%		
	Separated	1	0.60%	2	1.10%		
	Single	51	28.20%	53	29.30%		
	Widow	0	0.00%	14	7.70%		
Residence type	Rural	75	41.40%	109	60.20%	12.78	0.000***
	Urban	106	58.60%	72	39.80%		

Source**:** Author's Field Survey, 2020, Significant level; 1% (***), 5% (**)

Factors Accounting for Regional Variations in HIV Prevalence and Spread in Ghana

Thirteen (13) out of 21 independent variables were reported by multiple logistics regression models to be statistically significant at 1% and 5%, influencing HIV spread among adults in Ghana (See Table 3). These 13 variables significantly contribute to variations in the likelihood of spreading HIV among adults in Ghana. These variables are listed as; the age of respondents, sex of respondents, marital status, having sex with multiple partners, condom usage at all times, sex for money, infected with sexually transmitted infection (STI), alcohol or drug addiction, awareness of places where sex is traded, awareness of drugs selling places, income level, access to places where sex is traded and migration status of respondents.

Though many studies exist on the causes of HIV, these variables have also been under-reported. This study contributes to the ongoing debate in global health by outlining the principal factors responsible for the spread and regional variations in HIV/AIDS in Ghana. The implication is that there is the likelihood of reducing the spread of HIV if these variables are targeted and brought under control. On the other hand, ineffective handling of these factors will expose populations to infections and retard efforts to combating HIV/AIDS in Ghana.

Table 3. Factors Accounting for HIV Spread among Adults in Ghana

Variables	**AOR**	**P>z**	**[95% Conf. Interval]**
Age Group	1.795	0.002***	1.24321 - 2.59137
Sex	4.443	0.027**	1.189168 - 16.59735
Occupational Status	0.410	0.207	0.1024159 - 1.639884
Educational Status	0.515	0.203	0.1851685 - 1.430976
Marital Status	0.210	0.003***	0.0753018 - 0.5871516
Respondents Place of Residence	0.405	0.083	0.1459216 - 1.123671
Age group first time of sex	0.665	0.479	0.2140524 - 2.062923
Having sex with multiple partner	4.269	0.009***	1.448189 - 12.58322
Condom usage at all time	0.069	0.016**	0.007898 - 0.6095435
Ever had sex with a partner 15 years older	1.581	0.492	0 .4272804 - 5.853243
Sex for money	21.404	0.000***	6.098537 - 75.12323
Infected with sexually transmitted infection	7.135	0.000***	2.491865 - 20.42966
Alcohol or Drug addiction	0.082	0.000***	0.0240381 - 0.2818849
Awareness of places where sex is traded	6.792	0.007**	1.68661 - 27.34769
Awareness of drugs/alcohol selling places	0.123	0.006**	0.0278064 - 0.544935
Income level	0.201	0.008**	0.0609327 - 0.6613691
Access to place of sex trade	12.708	0.011**	1.791786 - 90.13664
Used to traveling to other parts of the country	0.664	0.480	0.2127659 - 2.069773
Migration Status	10.616	0.000***	2.881842 - 39.10868
Practice polygamy marriage	1.157	0.867	0 .2110345 - 6.34252
Entertainment	0.529	0.415	0.1145077 - 2.446815
Number of obs = 362		Prob > chi2 = 0.0000	
LR chi2(21) =356		Pseudo R2 = 0.7094	

Source: Author's Field Survey, 2020, Significant level; 1% (***) and 5% (**)

The Level of Implementation of National HIV/AIDS Control Strategies

Among respondents, the use of condoms during sexual intercourse is a sure strategy to reducing the spread of HIV/AIDS (50.3% of HIV carriers and 52.1% of persons without HIV). Staying faithful to one partner was the next strategy recommended by the respondents (30.2% of HIV carriers 16.6% of persons without HIV). These responses align with the national HIV/AIDS strategy of reducing the spread of AIDS through education and sensitization. The realization to practice safe sex, test for HIV, being faithful to only one sexual partner and avoiding unsafe sex with multiple partners help to reduce the chances of new infections HIV/AIDS.

Furthermore, the study suggests that many people will ordinarily not test for HIV/AIDS except they are asked by medical experts to do so. As the study indicates, 54.7% of HIV carriers tested on the demands of medical experts, while only 22.7% of HIV carriers tested upon seeing the symptoms of HIV/AIDS in them. Findings indicate that only a few people test for HIV/AIDS due to PMTCT and the desire to know their status (Table 3). These findings corroborate the findings of [11, 12] that many Ghanaians do not like to check up or test for HIV unless there is expect the request to do so. This implies that HIV/AIDS education needs to do more on attitudinal change and the need to embrace the scientific world in response to combating HIV/AIDS.

Recommendations to Address Knowledge, Attitudes and Behaviour towards HIV Persons

Generally, the study found that there was good knowledge on HIV/AIDS in both cases and controls but poor attitudes and behaviours towards persons living with HIV. It is therefore recommended for the purpose of safety and combating HIV/AIDS for health experts to organize periodic HIV/AIDS awareness campaigns all across Ghana. Such educational campaigns should be targeted at correcting the misconceptions in HIV/AIDS, teaching people on safe sex and how to avoid the spread of HIV/AIDS through behavioural adaptations. Again, there should be increased access to health facilities as this reduces the risks of exposure to HIV infections.

Again, stigmatization and poor attitudes towards persons with HIV/AIDS were found to be significant among the reasons why the virus spreads. This study proffers that people should be educated on how to live with infected persons. The education should also target reducing stigmatization and embracing infected persons as part of the larger community. It is as well recommended that educational campaigns should target specific age groups in different regions as age and geographical region were significant variables for the spread of the HIV/AIDS virus.

Table 4. Multiple Logistic Regression Analysis of Risk Factors associated with Spread of HIV across Regions in Ghana

Variables	Ahafo Region			Northern Region		
	AOR	**P>z**	**(95% Conf.Interval)**	**AOR**	**P>z**	**(95% Conf.Interval)**
Age Group	1.58	0.002***	1.081 - 1.631	1.581	0.138	1.081 - 2.081
Sex	1.48	0.001***	1.091 - 1.622	1.452	0.004***	1.092 – 1.822
Occupation	0.623	0.488	0.123 - 0.673	1.969	0.674	1.469 - 2.469
Educational Status	0.415	0.061	0.011 - 0.465	0.103	0.143	0.003 - 0.603
Marital Status	0.148	0.000***	0.001 - 0.198	0.138	0.129	0.008 - 0.638
Age at first time of sex	0.631	0.357	0.131 - 0.681	0.616	0.754	0.116 - 1.116
Having sex with multiple partner	4.678	0.001***	4.178 - 4.728	3.494	0.036**	2.994 -3.994
Sex for money	29.826	0.000***	29.326 - 29.876	6.519	0.337	6.019 -7.019
Infected with sexually transmitted infection (STI)	22.963	0.000***	20.123 - 23.013	0.061	0.032**	0.001 - 0.561
Used to traveling to other parts of the country	0.215	0.003***	0.015 - 0.265	8.944	0.025**	8.444 - 9.444
Migration Status	16.331	0.000***	15.831 - 16.381	10.184	0.039**	9.684 - 10.684
Practice polygamy marriage	2.521	0.671	2.021 - 2.571	1.947	0.009***	1.447 - 2.447

Source**:** Author's Field Survey, (2020), Significant level; 1% (***) and 5% (**)

Conclusion

This study investigated the knowledge, attitudes, and behaviours of adults in Ahafo and Northern regions of Ghana towards HIV/AIDS. The study used a case-control study comprising of 362 adults was conducted in the Ahafo and Northern regions of Ghana in 2020. All 381 participants were cases (181) and controls (181) who were individually interviewed in a private setting by HIV/AIDS trained counsellors using a structured questionnaire Both cases and controls generally had good knowledge regarding HIV/AIDS but show poor attitudes towards PLHIV and as well engage in risky behaviours

that might predispose others to HIV infections. The findings highlight the need for culturally adaptive and age-specific HIV education for adults across all regions on misconceptions about HIV transmission and prevention, poor attitudes of adults towards PLHIV as well as the risky behaviours of adults regarding HIV/AIDS.

Conflict of Interest

The authors declare that they have no competing interests.

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