An Assessment of Factors Influencing Vulnerability and Prevention of HIV/AIDS in Ghana

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ABSTRACT

The AIDS epidemic has become one of the most serious health and development challenge in the world today. This paper assessed factors such as socio-cultural factors, having sex with multiple and concurrent partners and the consistency of condom use among others which are influencing vulnerability and prevention of HIV/AIDS in Agomanya, Koforidua, Tamale and Wa. A sample of 284 study participants comprising 98 PLWHA, 40 FSWs, 98 HIV caregivers were recruited using mixed sampling techniques. Data were collected using questionnaires and structured interviews. Content analysis, comparative analysis and direct quotations were employed as main tools to analyze the qualitative data whereas frequencies, percentage distributions, tables and cross tabulations were used to analyze quantitative data and present findings. Test of significance was also done using the chi-square test. Results of the study revealed that polygynous culture, low income and wife inheritance were some of the socio-cultural factors fueling the transmission of HIV/AIDS in the study communities. Findings from the study further showed that 29.9% of males living with HIV/AIDS (PLWHA), reported having sexual intercourse with multiple partners in the last twelve months in all the study communities. Condom use among male caregivers and people living with HIV/AIDS (PLWHA) with multiple partners in the last twelve months was 45.3% and 23.8% respectively. Although cross tabulation result shows that there was a 100% relationship between the number of male and female PLWHA who reported having more than one partner in the last twelve months and condom use, and the chi-square test also indicated (.000 at 0.05 significance level). However, the study result also indicated that 67.6% of female sex workers (FSWs) reported not using condom consistently with non-paying partners in all the study communities. The study therefore, concludes that poverty reduction strategies and women empowerment programmes should be integrated into mainstream HIV/AIDS prevention interventions in the study communities. The study also recommends workshops for PLWHA, caregivers and Female Sex Workers (FSWs) on the dangers of unprotected sex in all the study communities.

Key words: HIV/AIDS, vulnerability, sexual partners, condom use, female sex worke

INTRODUCTION

HIV/AIDS epidemic continues to be not only a global health issue but also a developmental challenge especially in Ghana. According to Romana et al (2020), more than 36 million people have lost their lives due to HIV/AIDS and over 80 million people have been infected with the disease. According to UNAIDS (2019), it is estimated that 37.7 million were living with HIV globally at the end of 2020. The HIV estimates developed in 2019 indicated that, no country has been able to reach the 2020 target of a 75% reduction in new infections. Furthermore, no region had reached a 60% decline by 2018. Given the available evidence on the effectiveness of HIV prevention and treatment, the lack of global and regional progress is alarmimg (ibid).

HIV/AIDS is a serious problem in Ghana and specifically, Agomanya, Koforidua, Tamale and Wa. Despite the fact that state and non-state actors have played various roles in HIV/AIDS prevention and treatment

interventions, HIV prevalence continues to increase in some parts of the country. According to UNAIDS (2022), the AIDS pandemic took life every minute in 2021, with 650,000 AIDS related death despite effective HIV treatment and tools to prevent, detect and treat opportunistic infections. Although local and international interventions, including extensive HIV/AIDS prevention programmes, have improved HIV knowledge and awareness around the globe, many new infections daily take place globally (UNAIDS, 2018).

Significant progress has been made to deal with the pandemic. Despite Ghana's weak performance in the sustenable development targets as at December, 2018, Ghana attained 63%, 42% and 15% of the first, second and the third 90-90-90 targets. These notwithstanding, HIV infection in Ghana continues to remain high (Ghana AIDS Commission, 2018).

Fobil (2006) in analyzing HIV/AIDS prevalence in Ghana, observed that areas around Atimpoku, Agomanya and Somanya are known to be contributing to the high HIV/AIDS prevalence in the Eastern Region because of the fact that the populations of these areas are made up of significant proportions of migrants returning from Côte d'Ivoire which is known to have one of the highest rates of infection in West Africa. Agadzi (1989) as quoted in Sundong (2005) indicates that AIDS was imported into Ghana primarily by female prostitutes in neighbouring Cote d`Ivoire. According to Crepaz et al (2006) while many people living with HIV/AIDS (PLWHA) eliminate or reduce behaviours that may expose others to HIV/AIDS, a considerable percentage (10 to 60%) do not consistently practice safer sexual behaviours, thus placing others at risk for HIV/AIDS infection and themselves at risk for sexually transmitted infections (STI) and possible super-infection with other strains of HIV/AIDS.

Against this background, it is therefore not clear what factors influence the vulnerability and spread of HIV in the study communities yet few studies have assessed factors influencing vulnerability and prevention of HIV/AIDS in the study communitis. In the light of the foregoing knowledge, it is imperative that further research is conducted to examine these issues. The objective of this study therefore, is to identify and examine the factors influencing the vulnerability and prevention of HIV/AIDS in Wa, Tamale, Agomanya and Koforidua.

THEORETICAL MODELS OF THE STUDY

Theories recognizing socio-cultural practices, social interaction and economic issues have been used in this study to examine factors driving the spread of HIV/AIDS in the Ghanaian context. These theories include the Social Disorganization Theory and the Theory of Gender and Power.

Social Disorganization Theory

This theory states that where social institutions, norms and values are no longer functioning, high rates of violence, drug abuse, poverty and disease occur (Elliott and Merrill, 1961). In the understanding of Frye et al (2006) the social disorganization theory is applied in examining how the social structure influences sexual behaviour. The theory postulates that the disruptive effects of industrialization, urbanization, and immigration lead to changes in the social structure of a neighbourhood via residential mobility, ethnic heterogeneity and concentrated poverty. The resultant structural changes weaken the social cohesion of neighbourhoods and reduce the power of social norms and informal social controls to regulate deviant behaviour. As a result, social problems, such as drug use, violence and sexual HIV/AIDS risk behaviours, occur (ibid).

Several studies have shown that socio-economic factors such as poverty and unemployment have a strong influence on individual sexual behaviour. Within both rich and poor countries, poverty is associated with HIV, and HIV intensifies poverty (Fredricksson and Kanabus, 2005). In linking this theory to the social structure of South Africa, Breetzke (2010) observes that the recent political history of South Africa is

inherently intertwined with social disorganization and community fragmentation which led to Black communities being marginalized, both socially and economically, as the apartheid government sought to maintain class exploitation and to prevent unified resistance. The importance of this theory for this study is that it explains the role of socio-cultural and economic factors as drivers of HIV/AIDS in the study communities if not attended to. However, one of the challenges with this theory according to Frye (2006) is that there is a growing focus on the role of social networks, as opposed to sexual networks, and their influence on HIV and STI infection and transmission, sexual behaviour and sexual HIV/AIDS risk behaviour.

Theory of Gender and Power

This theory views the differences in labour, power dynamics, and relationship-investment between women and men as structures that can produce inequalities for women and increase women's risk and vulnerability to HIV/AIDS (Wingood and DiClemente, 2000). Developed by R.W. Connell, the Theory of Gender and Power addresses the wider social and environmental issues relating to women, such as gender-based power imbalances, in contrast to the psychosocial theories which are essentially gender-blind (King, 1999). The theory is a social structural model that seeks to understand women's risk as a consequence of different social structures. It argues that self-protection by women is often swayed by economic factors, abusive partnerships, and the socialization of women to be sexually passive or ignorant. The theory can help guide interventions with both women and men incorporating the structure of gender relations, societal definitions of masculinity and femininity, and economic power (Connell, 1987, cited in Population Council, 2006).

The theory is very significant for this study because it examines the nature of gender inequality especially unprotected sex and its effects on HIV/AIDS transmission in the study areas. According to Wingood and DiClemente (2000) women having lower incomes are less likely to use condoms and women living in poverty may not be able to afford HIV/AIDS prevention materials, thus increasing their exposure to HIV/AIDS. Also, women who believed that asking a sex partner to use condoms implied that he was unfaithful are four times as likely to never use condoms compared with women who did not believe that asking a sex partner to use condoms implied infidelity (ibid).

Drivers of HIV/AIDS in sub-Saharan Africa

Park et al (2010) stress that the high prevalence of HIV/AIDS in Africa is associated with concurrent multiple sexual partnerships among Africans, single or married. Jewkes et al (2006) as quoted in Kolawole (2010) also reported that those that engaged in multiple concurrent sexual relationships are regarded as heavy carriers of the epidemic. However, Lurie et al (2009) as quoted in Sawer and Stillwaggon (2010) refuted the multiple and concurrent partners' argument and pointed out that there have been at least four ecological studies of HIV/AIDS and concurrency, and none finds a statistically significant correlation between rates of self reported concurrency and HIV/AIDS prevalence.

Securing money to stay in school, buy goods and food according to Audet et al (2010) has also been identified as a reason for adolescent girls in sub-Saharan Africa to participate in sexual relationships. Amo-Adjei et al (2014) undertook a study to examine transactional sex among female University Students in the University of Cape Coast and its implication for HIV education in higher institutions of learning in Ghana. The study used snow balling to recruit 40 study participants engaged in transactional sex. Findings from the study showed that the unequal nature of the relationships that existed between these girls and their male counterparts makes it difficult for them to negotiate for condom use during sex.

The result of the study also indicated that young girls were ignorant about the risk and the invincible nature of sexually transmitted diseases. The study again showed that higher education offers no match for the socio-economic and cultural factors which make female youth compromise on safer sexual pracrices, rendering

them vulnerable to sexually transmitted infections (STIs) and particularly HIV/AIDS.

Madise and Hinde (2003) as quoted in Agyemang (2009) note that in sub-Saharan Africa, sexual activity appears to be driven largely not only by poverty but by cultural beliefs and practices. In the opinion of Olaleye et al (2020), sexual behavior of young people especially sex workers, socio-economic and cultural factors are the factors influencing the vulnerability and spreading of HIV. In adding to the discussion, Akoku et al (2018) reinterates that socio-economic conditions and female sex workers are the major factors fueling HIV infection in Cameroun.

Agbo et al (2022) carried out an investigation into the socio-economic and cultural factors driving HIV epidemic among female sex workers in South-south and North-central states of Nigeria using a sample size of 415 FSWs. The findings of the study indicated that inconsistence use of condom, use of alcohol, stigmatization and discrimination, risk perceptions among others were the factors fueling HIV infection in the two states.

Savegu et al (2022) studied the socio-demographic, health, social, behavioural and biomedical factors influencing the spread of HIV among adults in Ghana using 362 study participants including 181 people living with HIV/AIDS. The study concluded based on its findings that, there is the need to create job opportunities, discourage sex trade, promote condome use for those who cannot abstain, regulate the sale of drugs and alcohols in the study communities.

THE RESEARCH DESIGN

Cross-sectional survey and case study designs were employed for the quantitative and the qualitative methods respectively. A structured questionnaire was administered to 298 sampled PLHWA, 98 HIV caregivers, and 40 Female Sex Workers (FSWs). A qualitative semi-structured interviews and key informant interviews were used to elicit data from PLWHA, caregivers FSWs. Babbie (2007) justified survey strategy by emphasizing that survey research is probably the method available to the social researcher who is interested in collecting original data for describing a population too large to observe directly. Surveys are also excellent vehicles for measuring attitudes and orientations in a large population (ibid). A Case study research therefore deals with the in-depth study of instances of a phenomenon in its natural context and from the perspective of the informants involved in the phenomenon (ibid).

Study Population

The targeted population included: PLWHA, Female Sex Workers and male and female caregivers with PLWHA,

Number of Registered PLWHA in the Study Communities

Data on reported cases of HIV/AIDS is quite limited and very difficult to obtain because of the sensitive nature of the disease and the kind of stigma attached to communities with high number of HIV/AIDS cases. There was no proper and accurate data captured on the actual number of PLWHA in the study communities and in some cases there was no current data or no data at all recorded for some of the years. Furthermore, some of the cases have been under reported and sometimes some PLWHA do not even register with the various associations of PLWHA in the study communities. It was therefore extremely difficult to obtain information on the exact number of HIV/AIDS reported cases in the study communities. The numner of registered PLWHA in the study communities therefore, are 1300 for Agomany, 250 for Yamale, 750 for Koforidua and 400 for Wa.

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Sampling Size Estimation.

A population is the entire set of relevant units that a researcher has interest in generalizing. A sample frame is the list of all sample units in the population area (Frankfort-Nachmias and Nachmias, 1996). Sampling frame and sampling size estimation for PLWHA and their caregivers were done using Saunders et al (2009) with margin of error estimated at 8%. The mathematical formula used in the determination of the sample size is as follows:

$$n = \frac{N}{1+N(\alpha)^2}$$

Where;

n = sample size

N = sample population

α = margin of error estimated at 8%

The sample size (n) for 250 PLWHA and their caregivers in Tamale was calculated as follows:

$$n = \frac{250}{1+2700(0.01)}$$

$$n = 9.3$$

$$n = 9$$

The sample size for PLWHA in Agomanya, Koforidua and Wa were calculated in the same manner. Therefore, the number of PLWHA and their caregivers to be interviewed in this study is catalogued in Table 1.

Table 1: Sampling Frame and Sample size Determination for PLWHA

Communities	Number PLWHA	Calculation	%	Size
Tamale	250	250/1+2700 (0.01)	9.3	9
Wa	400	400/1+2700 (0.01)	14.4	14
Agomanya	1300	1300/1+2700 (0.01)	48.1	48
Koforidua	750	750/1+2700 (0.01)	27.2	27
Total	**2700**		**100**	**98**

Source: Author's Construct, 2021

Sampling Technique

The ninety-eight (98) study participants from PLWHA were recruited from the four communities using the snow balling technique after the researchers were introduced to the regional chairmen of the association of PLWHA in Agomanya, Tamale, Koforidua and Wa by the various HIV focal personnel in the various assemblies. Wahyuni (2012) observed that the practice of obtaining a studied subject via a referral system is

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known as *snowball* or networking method. The PLWHA were chosen for this study because they were actually living with the disease and can better share their experiences with the researchers on the kind of care and support programmes given to them by stakeholders. The initial contact with the PLWHA in Tamale was through the HIV focal person for the Tamale Metropolitan Assembly. All discussions concerning the purpose and objective of the study were held with him. Similarly, the HIV focal persons for the other study areas were the ones who assisted us with the initial contact with the various presidents of the various Associations of PLWHA in the study areas.

Again, the same method was employed for the recruitment of 98 HIV caregivers for data collection in the study communities because once the researchers identified the PLWHA, the person automatically led the researchers to his/her caregiver having satisfied ethical considerations required. The HIV caregivers were selected for the study due to the fact that they have been living with the PLWHA and know better how it feels like living with somebody with HIV/AIDS and the way other people perceived them and even behaved towards them and their patients and can better share actual experiences with the researchers.

The snow balling technique was again used to recruit ten (10) Female Sex Workers (FSWs) each in Agomanya, Tamale, Koforidua and Wa after the researchers were introduced to them by the HIV/AIDS focal persons and some of the NGOs working with them. Babbie (2007) explained that one of the most well known forms of non-probability sampling is the snowball sampling method, which is particularly suitable when the population of interest is not fully visible. For instance, hidden populations who may be involved in sensitive issues or illegal activities such as drug use and prostitution. The female sex workers were identified as key respondents in this study because they are counted among the key population and most-at-risk-population cohort susceptible to HIV/AIDS infection. The number of female sex workers (10) for each study area was informed by the fact that it is generally known that getting access to this cohort of study participants to interview for a study of this nature in Ghana is difficult and requires a lot of resources. Although, the researchers were fortunate to have been introduced to them by the various NGOs working with them, yet some demanded payment before responding to questions.

Agomanya and Koforidua were purposively selected and the criterion was based on the fact that these communities had the highest HIV prevalence rate of 8.0% and 5.8% respectively in the Eastern Region. Agomanya and Koforidua were also chosen because the START programme, a joint effort by the Government of Ghana (GoG) and Family Health International (FHI) and other stakeholders was first introduced in St. Martin de Porre Hospital in Agomanya in the Eastern Region to offer comprehensive HIV/AIDS care including antiretroviral therapy to PLWHA in the Manya and Yilo Krobo Districts of the Eastern Region of Ghana. Purposive sampling was also used to select Wa and Tamale because they had low HIV prevalence rate of 2.0% and 1.2% in the Upper West and the Northern Region respectively.

Methods of Data Collection

Questionnaires are frequently used tool in a survey research and consist of series of questions on a topic about which the respondent's opinion are sought (Sommer and Sommer, 1991). Questionnaires were therefore administered to PLWHA and their caregivers and female sex workers, This was done to solicit data on the use of condoms and sex with multiple and concurrent partners in the study communities. Both closed and opened ended questions were asked. The questionnaire was carefully structured and designed according to the objectives of the study. Respondents were visited from house to house in the study communities for adequate and relevant data. In each case, questions were structured and read out to respondents. This was necessary to ensure that data collection process was interactive and that respondents understood the questions put to them. This was also done because majority of the people within the target group were semi-literates, hence, a direct and face to face interaction with them made data collection more efficient and reliable.

The In-depth Interview Method (IDI)

In-depth interviews were also used for data collection. The rationale for using in-depth interview method was to elicit in-depth information about the research topic by probing the respondents further based on the responses given. Rubin and Rubin (2005) refer to an in-depth qualitative interviewing as 'responsive interviewing'. Responsive interviewing concentrates on obtaining a deep understanding, rather than breadth, about the investigated topic (ibid).

Methods of Data Analysis

The Quantitative data analysis approach was employed in the analysis of the quantitative data using statistical tools such as frequencies, percentage distributions and tables to describe variables. These tools which were obtained through the Statistical Package for Social Sciences (SPSS) for Windows (version 17.0; spss Inc, Chicago) software and Excel for Windows (version 7.1; Microsoft Corp. Redmond, WA), were employed to organize the research findings and statistical significance was defined as a P-value of < 0. 05. All coded responses were grouped under variables such as condom use, and the number of sexual partners. This method was employed to observe the number of times a certain response falls or the frequency of certain responses under each of the variables. Cross tabulations were also done to determine wherher there is a relationship between male and female caregivers and PLWHA who reported having sex with more than one partner and the rate of condom use. In addition, tests of significance using chi-square were run to establish whether the relationships (if any) between the number of partners male and female caregivers and PLWHA had sex with in the last twelve months and the how regular they used condom is significant.

Qualitative Method of Data Analysis

Performing data analysis on qualitative data basically involves dismantling, segmenting and reassembling data to form meaningful findings in order to draw inferences (Boeije 2010). As such, content analysis, comparative analysis, and direct quote from respondents, were employed in the analysis of the qualitative data. The qualitative contents analysis concentrates on portraying reality by discovering meanings from the textual data. Comparative analysis was also used in the analysis of the qualitative data so as to identify emerging patterns to enable easy comparison of issues in Agomanya and Koforidua in the Eastern Region with Tamale in the Northern Region and Wa in the Upper West Region. Consistent with this method Boeije (2010) observed that the constant comparative method focuses more on describing variation in different circumstances of social phenomena.

Wahyuni (2012) noted that it provides a more systematic way to identify any difference that emerges in empirical data. The coding method was applied in the analysis of the qualitative data. Wahyuni (2012) maintained that in practice, qualitative content analysis uses a coding method. Coding simply means labelling. It refers to the assignment of a code representing the core topic of each category of data. In order to make it easier for analysis, the questions were coded before going to the field. Then through in-depth interviews, the opinion of respondents on such indicators as the use of condoms and multiple sexual partners in the communities were transcribed and carefully examined, summarized and presented in words.

Unit of Analysis and Data Processing

The unit of analysis is sometimes referred to as the unit of observation. According to Babbie (2007), a unit of analysis is 'what' or 'whom' is studied. The unit of analysis in this study involved multiple respondents aged above 18years; PLWHA, Caregivers to PLWHA and FSWs, A coding process was used for questionnaire and data entered into the Statistical Package for Social Sciences (SPSS 17). Descriptive statistics such as the frequency distribution, cross tabulation, tables, percentages were generated and their

interpretations given. The chi-square was also used to establish significance relationships between the number of partners male and female caregivers and PLWHA had and the rate of condom use.

ETHICAL CONSIDERATIONS

It is acknowledged that HIV/AIDS is a sensitive issue and the privacy of the respondents is very imperative. Written consent was therefore obtained in accordance with the specified procedures for the study and submitted to the ethical review board of the school of medical sciences, KNUST for ethical clearance after which copies were also submitted to all the Health Directorates in the study communities. A scheduled appointment with the various Health Directors in the study communities was arranged. Once approval was granted by the Health Directors, further permission was sought from the personnel officers of the various Metropolitan, Municipal and District Assemblies (MMDAs) in the study communities to consult the various HIV focal persons for the necessary discussions and arrangements for the research to be undertaken. All participants gave their consent prior to being interviewed and participation even after the consent was strictly voluntary. Wahyuni (2012) recommends that the researcher starts off the interview by briefly explaining the aim of the interview and emphasizing the confidentiality, anonymity and the voluntary nature of the study.

The interviewee is then given a consent form which should be signed off by both the person and the researcher. With the participant's permission, each interview should be recorded. Therefore, the study ensured that the identity of participants and the information provided by them was secretly kept and never disclosed to anyone. Names of participants were not written on the materials and labels identifiable by the researchers were used to identify any particular respondent. The respondents were assured that confidentiality was going to be maintained by not revealing anything the researchers learnt to other participants or members of the community. The interviews were held at secret places for PLWHA and FSWs where respondents normally attend their meetings to ensure confidentiality and anonymity and to protect respondents. It was after all these processes and procedures were satisfied that data collection started**.**

RESULTS AND DISCUSSIONS

Demographic Characteristics of Respondents

Marital Status of Study Participants

Marital status is a very significant independent factor that determines the kind of sexual behaviour that an individual can adopt. The results as indicated in Table 2 shows that more respondents (46.5%) are married than those who are single (29.2%) in all the study communities. More respondents are also married in Wa (64.0%) and Tamale (52.5%) as compared to those in Agomanya (38.1%) and Koforidua (44.7%).

Educational level of study Participants

Educational attainment is very important because it could influence the way respondents assimilate HIV/AIDS information and acceptance to condom use. Table 2 indicates that 45.1% of the respondents have no formal education, 32.7% do have basic education and only 21.1% and 1.1% had secondary and tertiary education respectively in all the study communities. Comparatively, the educational attainment level in Tamale and Wa appears to be much more higher than in Agomanya and Koforidua. Respondents with basic level of education in Tamale (32.5%) and Wa (36.0%) are more than those in Agomanya (28.0%) and Koforidua (38.2%) and the trend is the same for secondary level of education.

A similar trend can also be seen with respondents with no formal education. Respondents with no formal education in Tamale (37.5%) and Wa (40.0%) are lesser than those in Agomanya (49.2%) and Koforidua

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(46.1%) even though this result is worrying and has implication for assimilation of HIV/AIDS information in the study communities

Table 2: Demographic Characteristics of study Participants Socio-economic Characteristics of Respondents

Communities	Single		Married		Divorced		Widowed	
	Frq	%	Frq	%	Frq	%	Frq	%
Agomanya	32	27.1	45	38.1	23	19.5	18	15.3
Tamale	13	32.5	21	52.5	2	5.0	4	10.0
Koforidua	27	35.5	34	44.7	7	9.2	8	10.5
Wa	11	22.0	32	64.0	3	6.0	4	8.0
Total	**83**	**29.2**	**132**	**46.5**	**35**	**12.3**	**34**	**12.0**
Communities	**Educational Status of Respondents**							
	No formal education		**Basic**		**Secondary**		**Tertiary**	
	Frq	**%**	**Frq**	**%**	**Frq**	**%**	**Frq**	**%**
Agomanya	58	49.2	33	28.0	27	22.9	0	0
Tamale	15	37.5	13	32.5	10	25.0	2	5.0
Koforidua	35	46.1	29	38.2	12	15.8	0	0
Wa	20	40.0	18	36.0	11	22.0	1	2.0
Total	**128**	**45.1**	**93**	**32.7**	**60**	**21.1**	**3**	**1.1**

Source: Field Survey, 2021

FACTORS INFLUENCING HIV/AIDS VULNERABILITY AND PREVENTION

The Number of Sexual Partners and Condom Use among PLWHA as Factors driving HIV/AIDS in the Study Communities.

The number of sexual partners and the extent to which PLWHA use condom could also determine the incidence of HIV/AIDS among the general population and the rate of re-infection among PLWHA. The study sought to find out the number of partners and condom use among PLWHA. The result revealed that 20 males (29.9%) and 47 females (70.1%) in all the study communities reported having sex with more than one partner who was not infected in the last twelve months. The results also indicated that the males in Agomanya (30.6%) and Koforidua (31.3%) practised promiscuity more than those in Tamale and Wa while the females in Tamale (75.0%) and Wa (72.1%) are more promiscuous than the females in Agomanya and Tamale. Again, it can be inferred from the results that females in Agomanya (69.4%) and Koforidua (68.8%) have had sexual intercourse with more than one partner than the males in the last twelve months. A similar pattern is observed in Tamale and Wa (Refer to Table 3)

Table 3: Percentage of PLWHA reporting having sex with more than one sexual partner who were not infected in the last 12 months

communities	Male n = 32		Female n = 66		Total	
	Frq	(%)	Frq	(%)	Frq	(%)
Agomanya	11	30.6	25	69.4	36	**100**
Tamale	1	25.0	3	75.0	4	**100**
Koforidua	5	31.3	11	68.8	16	**100**
Wa	3	27.1	8	72.7	11	**100**
Total	**20**	**29.9**	**47**	**70.1**	**67**	**100**

Source: Field Survey, 2021

However, the result as indicated in Table 4 suggested that despite the fact that more males in Agomanya and Koforidua reported having sexual intercourse with more than one partner in the last 12 months, yet they also reported low condom use. Comparatively, the males in Tamale and Wa who reported having sex with more than one partner reported high condom use than those in Agomanya and Koforidua as observed in Table 4. Even though more males reported having sex with more than one partner in all the study communities as reflected in Table 4 yet only 23.8% of males reported using condom in all the study areas while more females (76.2%) still reported high condom use in all the communities.

Table 4: Percentage of PLWHA reporting condom use in the last 12 months

Community	Male		Female		Total	
	Frq	(%)	Frq	(%)	Frq	(%)
Agomanya	4	22.2	14	77.8	18	**100**
Tamale	1	33.3	2	66.6	3	**100**
Koforidua	2	18.2	9	81.8	11	**100**
Wa	3	30.0	7	70.0	10	**100**
Total	**10**	**23.8**	**32**	**76.2**	**42**	**100**

Source: Field Survey, 2021

The study also compared the number of PLWHA reporting having sex with more than one partner who is not infected with the number times they used condom. The results of the cross tabulation as in Table 5 showed that 53 (100%) of PLWHA who reported having sex with more than one partner also reported using condom and using it cocnsistently in the last twelve months. This clearly shows that there was a relationship between the number partners PLWHA had sex with and the number times they used condom.

Table 5: Showing a cross tabulation of PLWHA who reported having more than one sexual partner and consistent condom use in the last twelve months

	Did you use condom and used it consistently the last time you had sex?				
			Yes	No	Total
Did you have sex with more than one partner in the last twelve months?	Yes	Frequency	53	0	53
		Percentage	100.00%	0.00%	100%
	No	Frequency	0	36	36
		Percentage	0%	100%	100%
	I don't know	Frequency	0	9	9
		Percentage	0.00%	100%	100%
Total		Frequency	53	45	98
		Percentage	54.10%	45.90%	100%

Source: Field Survey, 2021

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The study also sought to validate the cross tabulation result by running a chi-square test to establish whether there was a significant relationship between those who reported having more than one partner and consistent condom use in the last twelve months. The Chi-Square test as in Table 6 shows the test is significant (.000) at 0.05 significance level. This implies that those reporting having more than one sexual partner also used condom and used it consistently in the last twelve months.

Table 6: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	89.295[a]	4	.000
Likelihood Ratio	81.150	4	.000
Linear-by-Linear Association	56.149	1	.000
N of Valid Cases	98		

a. 5 cells (55.6%) have expected count less than 5. The minimum expected count is .37.
Source: Field Survey, 2021

The result of the informant interviews also revealed various ways by which PLWHA perceived themselves to have been infected though most of them could not remember. The few who could remember mentioned unprotected sexual intercourse with multiple partners, widow inheritance, polygynous marriages and unsafe blood transfusion. Unprotected sexual intercourse with multiple partners and unsafe blood transfusion were frequently mentioned in Agomanya and Koforidua while widow inheritance and unprotected sexual intercourse with multiple partners were the frequent responses in Tamale and Wa.

Condom Use among Female Sex Workers with Paying Partners.

The review of literature indicated that HIV/AIDS was imported into the Eastern region by female prostitutes returning from Côte d'Ivoire (Agadzi, 1989 cited in Sundong (2005; Fobil, 2006). It was therefore important to ascertain the extent of condom use among female sex workers with their paying and non-paying partners in the study communities. The study revealed that a substantial number of female sex workers used condoms with paying clients in the study communities as indicated in Table 7. As observed from the results, more female sex workers in Tamale (27.3%) and Wa (30.3%) used condom more than those in Agomanya and Koforidua.

Table 7: Percentage of Female Sex Workers reporting condom use with paying clients

Community	**FSWs n = 40**	
	Frequency	**(%)**
Agomanya	8	24.2
Tamale	9	27.3
Koforidua	7	18.2
Wa	10	30.3
Total	**33**	**100.0**

Source: Field Survey, 2021

It is important to note that the findings on condom use do not necessarily imply that there was consistency in condom use by sex workers. The study therefore sought to find out how regular FSWs used condoms with all their partners. The result revealed that 67.6% of female sex workers in all study communities do not use condom consistently with their non-paying partners. It is also realized from the result that female sex workers in Agomanya (75.0%) and koforidua (85.7%) do not consistently use condom with non-paying clients as compared to those in Tamale (55.6%) and Wa (60.0%) (See Table 8)

Table 8: Consistency of condom use between FSWs and non-paying partners

Community	Sometimes		Always		Total	
	Frq	(%)	Frq	(%)	Frq	(%)
Agomanya	6	75.0	2	25.0	8	100.0
Tamale	5	55.6	4	44.4	9	100.0
Koforidua	6	85.7	1	14.2	7	100.0
Wa	6	60.0	4	40.0	10	100.0
Total	**23**	**67.6**	**11**	**32.4**	**34**	**100.0**

Field Survey, 2021

In-depth interview with 6 female sex workers in Koforidua who claimed not using condom with paying clients revealed that the clients pay more for unprotected sexual intercourse. Results of the study also show that though female sex workers were aware of the dangers involved in the profession, they had no option due to low income. This was unraveled during key informant interviews. The discussions revealed that attitudes of female sex workers who move from one place to the other across the regions and do not necessarily operate in one place otherwise known as roamers, facilitate the transmission of HIV/AIDS in the study communities. Key informant interviews revealed that Female sex workers in these communities belonged to different categories. While some tagged themselves as high class prostitutes and dealt only with clients in glamorous hotels, others considered themselves as low class prostitutes and do not usually move from one place to the other (that is Seaters) and had their own rented apartments where these activities were carried out. Data was collected from these categories of prostitutes through key informant interviews. The study also revealed that prostitution was looked down upon and despised by the communities in Tamale and Wa to the extent that women who engaged in prostitution have to either disguise themselves or go to places where they could not be identified. For this reason, they were not prepared for any organization to identify them let alone deal with them. It came to light from the study that some of them have been harassed on many occasions by the people in the communities and therefore, they always hide themselves in either some of the hotels or give their cell phone numbers to hotel receptionists to be given to clients who expressed interest to patronize their services.

However, the situation was different in Agomanya and Koforidua as people even walk in broad daylight to the outlets of these prostitutes to solicit for their services. In an interview with the HIV focal person from the New Juaben Municipal Assembly in Koforidua, it was realized that the Assemblies have been trying to have some discussions with some of the sex workers but without success as they were not prepared to avail themselves. However, in separate discussions with female sex workers numbering 8 and 10 in Agomanya and Koforidua respectively, they claimed that nobody ever sought to organize any programme for them. The only thing they could remember was condom distribution about five (5) years ago.

Polygynous Culture

The review of literature pointed to the fact that having unprotected sex with multiple and concurrentpartners could expose a person to the dangers of STIs. The study therefore sought to find out the number of wives male

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caregivers were having. The result shows that 26.7% and 33.3% of male caregivers in Tamale and Wa respectively had more than one wife as compared to male caregivers in Agomanya and Koforidua (Refer to Table 9)

Table 9: Percentage of Male caregivers Reporting having more than one Wife in the study communities

Communities	Frequency	(%)
Agomanya	3	20.0
Tamale	4	26.7
Koforidua	3	20.0
Wa	5	33.3
Total	15	100.0

Source: Field Survey, 2021

The informant interviews revealed that the Islamic religion indeed permits marrying up to four wives and because of its strict code and rigid nature, to a large extent does not encourage the use and promotion of condoms as protective mechanism and therefore some participants really reported not using condoms at all. The discussions further revealed that among some ethnic groups such as the Dagabas and Walas in Wa and the Dagomba, Gonjas and the Mamprusi in Tamale for instance, the culture of having many wives was allowed and it was duly practiced by almost all the Northern ethnic groups. Key informant interviews indicated that some men do engage in other relationships in addition to their wives whiles women are forbidden to have any extra-marital affair. A female caregiver in a key informant interview in Wa observed:

"In Dagabas' culture, it is a belief that when a woman engages in extra-marital affair, she might not be able to deliver safely when she is pregnant and in some cases might even loose her life in the process" (Key Informant Interview, September, 2021)

The result of the discussions also indicated that the Catholic Church which commands substantial followers in Wa, does not also subscribe to condom use and its promotion. Women reported unable to disobey the command of their husbands, could not talk where there were men and not even to the extent of suggesting using protection during sex. The lives of women were generally dictated to by men in Tamale and Wa as reported by female caregivers during focus group discussions and key informants interviews. A woman lamented in a focus group discussion at Zongo, a suburb of Wa:

"My husband spends all his time drinking pito and akpeteshie (locally brewed gin) and end up spending the household income on drinks. Our children are out of school because we cannot pay their fees. We cannot even pay for medical attention and as a result, we go traditional medicine to treat ourselves" (in-depth interview, September, 2021).

However, women in Agomanya and Koforidua during focus group discussions and key informant interviews reported being treated with respect. Discussions and interactions among spouses and their families characterized the family structure of households and marriages in Agomanya and Koforidua as reported by caregivers. However, respondents confirmed during the discussions that sometimes their husbands do exercise certain level of control over them.

Widow Inheritance

Empirical evidence from the study revealed that the practice of marrying a dead brother's wife was customarily acceptable amongst more than half of the ethnic groups in Wa and it was called *bye-election*. This was unraveled during focus group discussions and key informant interviews. This practice exposes the woman to STIs including HIV/AIDS infection in case the man inheriting her is infected and she cannot ask him to go for HIV/AIDS test

before having sexual intercourse with her. A female caregiver narrated her ordeal in an interview at Zongo, a suburb of Wa:

"I married my husband's brother some 10years ago when I lost my husband. I can tell you, Mr. this man is having six (6) wives already before I came in. He is a big womanizer and would go after anything in skirt. He is like a dog and I just can't do anything about it because, our culture does not permit a woman to disobey a man especially in sexual matters. I am praying one day this tradition will be abolished so that all the women who are victims of wife inheritance will be free. Mr. this is more than a person put in prison"

(Key Informant Interview, September, 2021).

In an in-depth interview with the HIV focal person of the Society for Women and AIDS in Africa (a non-governmental organization) in Wa, he lamented that these cultural practices especially wife inheritance is widespread and practiced among the ethnic groups in Wa. When asked as to what could be done to curb or abolish these practices, his answer was:

"Only God can change the situation because it is very difficult to change the culture of our people. To speak against wife inheritance is like sentencing yourself to death" (In-depth Interview, September, 2021).

Evidence from the study also indicated that the '*Dipo'* initiation rite contributed a lot to promiscuity in Agomanya. The results revealed that the '*Dipo'* rite was a rite of passage to adolescent age and was normally performed for young girls before they start sexual relations. Any young girl found to have engaged in sexual matters before the rite, was sanctioned together with the parents. They could be banished from the town for some years. Therefore parents especially mothers took keen interest in this rite to ensure that they were not embarrassed by their daughters. They would thus, go to any extra mile to ensure their daughters go through the rite by paying some money to the *princesses* who were seen as the custodians of those traditions. Due to this development, girls as young as four (4) years were initiated which indicated that they were ready for sexual activities. The HIV focal person from YOWE in Agomanya observed:

"Performing *the rite shows that the girl is ready for sexual activities. Any girl who does not perform the rite before marriage will be banished from the community and as such parents pay money to the princesses who were the custodians of these cultural and traditional practices in the community to ensure that their wards go through these rites and girls as young as 4years are even initiated" (*In-depth Interview, July, 2021).

It also emerged from the results of the study that, it was even difficult or impossible to discuss sexual matters with children in Wa and Tamale though the situation was different in Agomanya and Koforidua as reported by male and female caregivers. A woman in a focus group discussion in Koforidua observed:

During our time it was difficult for a young girl to know anything about sex until she is married. A young girl who was able to keep her virginity was respected and her parents dignified. Fortunately or unfortunately, western cultures which our children are exposed to have eroded such traditional values of chastity. The youth in these times are engaged in indiscriminate sex and the society looks on helpless. May God save them for us (Focus Group Discussion, July, 2021)

Low Income

Low income was perceived by caregivers to be a factor facilitating the transmission of HIV/AIDS in the study communities. The evidence revealed that majority of caregivers (70.4%) who were mostly farmers and petty traders earn a monthly income of below GH?100.00. The results also indicated that 22.4% of caregivers also earn between GH?100.00 – 200.00 in all the study communities. In much the same way 7.1% of respondents earn GH?300 and above in all the study communities. It is also observed from the results that majority of respondents in Agomanya (70.8%) and Koforidua (70.4%) earn between GH?50.00 – (See Table 10)

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Table 10: Income levels of caregivers in the Study Communities

	GH?50.00 – 100.00		GH?100.00 – 200.00		GH?300+		**Total**	
	Frq	**(%)**	**Frq**	**(%)**	**Frq**	**(%)**	**Frq**	**(%)**
Agomanya	34	70.8	12	25.0	2	4.2	48	**100**
Tamale	6	66.7	2	22.2	1	11.1	9	**100**
Koforidua	19	70.4	5	18.5	3	11.1	27	**100**
Wa	10	71.4	3	21.4	1	7.4	14	**100**
Total	**69**	**70.4**	**22**	**22.4**	**7**	**7.1**	**98**	**100**

Source: Field Survey, 2021

key informant interviews revealed that income levels were generally very low in the study communities, making women vulnerable and susceptible and pushing young girls to go for extra income from men by engaging in illicit sexual activities. The discussions also brought to light that movement of the youth to search for jobs outside their hometown, rape, defilement and young girls sleeping indiscriminately with married and older men old enough to be their fathers, were exposing these young girls to a lot of sexual transmitted infections (STIs).

Young girls selling sex for money and migration were frequent responses given by household heads as exposing young girls to the dangers of STIs especially HIV/AIDS. Female participants in the discussions added that these young girls mostly from the Senior High Schools, the Universities and the Polytechnics were snatching their husbands from them and even moving from one place to the other chasing wealthy men and having unprotected sexual intercourse with them because of the love for money. A female caregiver observed in Agomanya:

"We are always afraid when these young girls come home on vacation and we normally called them "womu aba ooooo" meaning "they have come ooo"; to snatch our husbands (in-depth interview, July, 2021)

The discussions brought to the fore the fact that these young girls were sleeping not only with their husbands but were engaging in prostitution within and outside their communities to get money to either pay their school fees or buy expensive smart phones and dresses. The fear of the women was that these young girls could end up infecting their husbands and ultimately they also getting infected but will be accused of rather infecting their husbands.

The study revealed that similar sentiments were echoed in both Tamale and Wa about the activities of young girls especially from Simon Diengo Dombo University of Business and Integrated Development (formerly satellite campuses of the University for Development Studies (UDS) and the Wa Technical University (formerly Wa Polytechnic). In Tamale and Wa, participants observed that these students rent accommodation within the cities and almost every home in Tamale and Wa was occupied in one way or the other by these students. Participants in the discussions in Wa and Tamale also emphasized that, the campuses were far away from the city centres where these students were staying and '*trotros*' (some 10-15 seater buses conveying people from one place to the other at a lesser cost in Ghana) were not as available as in Kumasi and Accra. The only available means of transportation were the motor bicycles popularly called ' *Aben waha'* (meaning it is ready) and '*Mapuka' (*name of a popular dance in La Cote d'viore). The indigenes rather take opportunity of the situation and offer assistance to these female students even during the night and by so doing end up sleeping with them. Additionally, the discussions in Tamale and Wa revealed that income levels in those areas were generally very low and students attending UDS and other tertiary institutions were from relatively poorer homes. Thus, these female students flirt with the few wealthy individuals to raise money to supplement what they get from their parents to pay their fees and take care of personal needs. A male caregiver remarked:

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"Officer you don't need to be wealthy to get UDS girls, once you have a motor bicycle and a sachet of Uncle Sam rice, walaa you are there. They will follow you every day and search for you everywhere" (Key Informant Interview, September, 2021).

DISCUSSION

The results of the literature review indicated that Agomanya and Koforidua recorded high prevalence rates consistently over the years with Tamale and Wa also recording lower cases. Both of these situations have been linked to migration of the youth to southern Ghana, socio-cultural practices in Tamale and Wa, and activities of female sex workers in Agomanya and Koforidua. The findings of the study and the review of literature identified these factors as facilitating the spread of HIV/AIDS in these areas. These areas are all urbanized and the possibilities of people migrating to and from these places are very high. These areas also serve as both entry and exit points for migrants coming from the northern and the southern part of Ghana. Wa and Tamale especially are close to border towns and exit to places such as Burkina Faso and Togo while Agomanya and Koforidua are exit to Cote d'Iviore which is known to have one of the highest HIV prevalence in West Africa. This situation could have implications for HIV/AIDS transmission in the study areas as people who move in and out of these areas and have had sexual contact without protection with others, are vulnerable to sexually transmitted infections and could jeopardize the life of any individual they have sexual contact with in the study communities.

The results indicated that polygynous cultures were quite common in the study communities. This result is similar to findings by UNAIDS/UNFPA/UNIFEM (2004) which suggest that cultural inclination may push men to have multiple relationships while the women are expected to abstain and be faithful. However, in contrast, Oppong (1998), Tastemain and Cole (1993) as quoted in Agyemang (2009) using the prevalence and incidence of HIV/AIDS in areas and communities dominated by polygamy concluded that if indeed, polygamy were a potent means of spreading HIV/AIDS, such Islamic societies should have exhibited a higher prevalence of HIV/AIDS since polygamy (an aspect of polygyny) is the normative form of marriage in these societies. Ghana AIDS Commission (2003) in supporting this view observed that available data do not support a direct link between polygamy and HIV/AIDS in Ghana. This is because the Northern Region which has the highest polygyny levels also has the lowest HIV/AIDS rates while the Eastern Region which has the lowest polygyny levels, exhibits the highest HIV/AIDS prevalence rates in the country. The best conclusion which can be arrived at is that, these are sexual lifestyles that could expose the individuals to a lot of sexually transmitted infections including HIV.

It also came to light from the results of the study that male caregivers were more promiscuous than female caregivers. Male caregivers with more than one sexual partner also reported low condom use. Cultural practices that view the man as superior and bestowed certain powers on him including the right to domestic violence against women and inability of women to question their husbands over extra-marital relationships, refuse sex and negotiate condom use are major avenues in exposing women to HIV/AIDS infection. This issue of multiple sexual partners and extra marital relationships with low condom use could have certain implications for HIV/AIDS transmission in the communities because the number of times an individual engages in unprotected sexual intercourse and the number of partners, determine to a large extent the vulnerability and risk rate of such a person. Understandably, those partners could also be having other partners elsewhere and this creates a web or a cycle of sexual escapade with multiple and tremendous effects on the community and the nation entirely. This is because these sexual partners also serve as intermediaries between those promiscuous men and the larger population and as a result a lot of sexually transmitted infections leading to sexually transmitted diseases such as gonorrhea and HIV are recorded.

It also emerged from the results that there was a wide general perception among female caregivers that young girls do sleep with older men for money to pay school fees. In addition, the results indicated that some female caregivers engaged in multiple sexual affair with different men citing financial difficulties and lack of employment as the cause. Generally, low income status among women and young girls has been identified as one of the factors driving HIV/AIDS in the study communities**. The implication of low income** is the fact that it makes these women and young girls rather adopt sexual behaviours and sexual lifestyles which ordinarily would not have been adopted, that could ultimately expose them to the dangers of contracting STIs and render them vulnerable and susceptible to HIV/AIDS infection. This situation, if not properly checked could lead to further unprecedented transmission of HIV/AIDS. Indeed this result is also similar with observation by Audet et al (2010). This study indicated that poverty may be a driving force for young girls and women to either engage in selling sex for money or have multiple sexual relationships with older men. The result is also consistent with finding of Amo-Adjei et al (2014), Olaleye et al (2020), which suggested that young girls engage in lifestyles that could expose them to the dangers of STIs including HIV/AIDS. This result is however, inconsistent with study result of Sawer and Stillwaggon (2010) who emphasized that there have been at least four ecological studies of HIV/AIDS and concurrency, and none finds a statistically significant correlation between rates of self reported concurrency and HIV/AIDS prevalence.

This finding has a lot of policy implication as it calls for not only poverty reduction programmes but women empowerment and the creation of livelihood sources or income generating activities for them. Generally, lack of employment will lead to financial difficulties and for the young girls or the women, the only way out of this financial difficulty is to render sexual services to wealthy men who may bail her out of this situation oblivious of the consequences this action might have on her in the future. Indeed the findings of the study indicated that female caregivers who had sexual pleasures with more than one partner in the last twelve months, cited lack of employment as one of their reasons. So for young girls and women who are in financial difficulties, what is important to them immediately is the money to solve whatever problems they might be encountering and the future can take care of itself.

It was also clear that certain communities oppose condom use and its promotion probably because of their religious inclination. This situation also presents a major challenge to the fight against the disease in these communities. The results also pointed to low condom use among caregivers and inconsistency in condom use by female sex workers and PLWHA. Ideally, PLWHA who were not using condoms with uninfected partners clearly subject their communities and by extension the entire country to great danger due to the fact that they can infect a substantial proportion of the population who unknowingly could also infect other partners in the circle. In addition, PLWHA also do more harm to themselves by refusing to use protection during sexual intercourse. This is because they might suffer re-infection which could facilitate the progression of HIV to AIDS in the shortest possible period. In the same vein, female sex workers who were inconsistent in using condom with non-paying partners also put their lives and the lives of those partners who could also be having other sexual partners in great danger because the likelihood of the female sex workers and their non-paying partners getting infected with STIs and by implication HIV/AIDS and infecting others is high. This result is in tandem with findings of Agbo et al (2022) which indicated low condom use among FSWs.

These results validate the argument advanced in the social disorganization theory and the theory of gender and power of this study which indicated that low income, gender inequality and socio-cultural practices that sought to give the man power over the woman may expose young girls and women to the dangers of STIs and HIV/AIDS. This suggests the need for poverty alleviation strategies and women empowerment programmes to be integrated in HIV/AIDS prevention interventions in the study communities.

CONCLUSION

The HIV/AIDS pandemic continues to spread in spite of the quantum of knowledge, information, and the

risk aspects, which have been availed to people. It is evident from the findings of the study that poverty may be a contributory factor for people to adopt risky sexual behaviours that could ultimately expose them to HIV/AIDS infection but other socio-cultural factors such as wife inheritance and polygynous marriages also account for the spread of the disease especially in northern Ghana. Therefore, poverty reduction strategies and women empowerment programmes should be integrated into mainstream HIV/AIDS prevention interventions in the study communities. The District Assemblies, the non-governmental organisations (NGOs), civil society organisations (CSOs) and other stakeholders in the study communities should organize worshops for PLWHA, caregivers and female sex workers to educate them on the dangers of unprotected sex in the study communities.

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Competing interest

Authors declare no competing interest

Ethical approval

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Conflict of Interest

Authors declare no conflict of interest

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