

Original Research Article

THE CONTRIBUTION OF ANTIRETROVIRAL THERAPY TO IMPROVING THE HEALTH CONDITION OF HIV/AIDS PATIENTS IN THE NEW JUABEN MUNICIPALITY

ABSTRACT

Our study focused on identifying factors underlining the deteriorating health condition of people living in the New Juaben Municipality. After a review of the relevant literature, the following hypotheses were developed: the attitude of PLWHA to ART is likely to affect their health condition; the fact of administering ART at designated clinics affects the attitude of PLWHA to ART and HIV/AIDS related stigma impacts negatively on the health condition of PLWHA. The objective of our paper was to look at the health status of PLWHA and the administration of ART in the New Juaben Municipality in the eastern region of Ghana. From the year 2000, PLWHA in the Eastern Region had been placed on ART. With Antiretroviral treatment, the situation in the New Juaben Municipality had not shown much improvement. This study was an attempt to find out whether the introduction of the treatment has had any impact on the health status of PLWHA. One hundred and twenty (120) respondents were sampled from the New Juaben Municipality. Quantitative data was collected with mostly close ended questionnaire, analyzed with the Statistical Package for Social Scientists (SPSS) and Chi Square hypothesis was conducted for each of the hypotheses. The results of our study rejected the null hypotheses successfully implied a confirmation of what each of the hypotheses stated. So a generalization could be made, implying that the findings about the statistics of the sample could be applied to the parameter of the population.

Keywords: *Antiretroviral drugs, Municipality, Hypothesis, Treatment, Respondents, Stigma, Discrimination.*

1 INTRODUCTION

It is not very clear where AIDS actually started, nevertheless, the first cases of AIDS were found in the United States of America in 1981, and then in Uganda in 1982. It is generally believed that cases of HIV/AIDS had been observed earlier on in the early 1970s. The virus that is generally believed to be causing AIDS, HIV-1 and HIV-2 were discovered in 1983 and March 1986 respectively. The difference between HIV-1 and HIV-2 is that HIV-2 takes a longer time to develop into a full blown disease [1]. The study does not intend to get involved in the forest of polemics surrounding HIV/AIDS; it rather intends to look at antiretroviral drugs and health status of people living with HIV/AIDS in the New Juaben Municipality.

The WHO reports that by the year 2011, a total of 36,700,000 people were living with HIV/AIDS with 1,700,000 deaths [2]. Western and Central Europe accounted for 860,000 with 9,300 deaths. Eastern Europe and Central Asia had 1.5 million people living the HIV/AIDS of which 90,000 died. In central and South America, there were 1.4 million people living with HIV/AIDS with 57,000 AIDS-related deaths. Asia and the Pacific accounted for 5 million with 331,000 deaths, while the Caribbean had a total of 230,000 with 10,000 deaths. Approximately 330,000 people had HIV in North Africa and the Middle East with about 25,000 deaths. An overwhelming number of 23.5 million people were reported living with HIV/AIDS in sub-Saharan Africa with 1.2 million deaths [2].

Thus, sub-Saharan Africa comes across as the most affected region in HIV/AIDS with Southern Africa as the area most heavily affected by the epidemic. In 2010, sub-Saharan Africa accounted for approximately 68 percent of people living with HIV worldwide and 70 percent of the new infections among adults and children. The region also accounted for 67 percent of the world's AIDS-related deaths in 2010 [3].

The HIV/AIDS scourge continued to plague the world and it was only three (3) years after the disease was discovered in Los Angeles that global search for a drug yielded some hope. A combination of new and emerging drugs provided an effective formula for treatment of the disease. By the end of the year 2009, more than 5 million people were on treatment [4]. Consequently, the number of people dying of AIDS and related cases decreased from a peak of 2.2 million in the mid-2000s to 1.8 million in 2010. A total of 2.5 million deaths in Low and middle income countries have been prevented since 1995 as a result of anti-retroviral therapy [5]. Executive Director of UNAIDS, there is ready access to HIV/AIDS drugs; hence, even poorer countries are recording tremendous scale up in access to treatment of AIDS. Advance treatment for HIV/AIDS in patients have dramatically extended the incubation period and AIDS survival time, while improving the quality of patient's life significantly [6].

According to reference [7], West Africa is considered as the region least affected by HIV/AIDS in sub-Sahara Africa, and that general picture reflects in the case of Ghana. After the first HIV case in Ghana was reported in 1986, the disease spread slowly but steadily. Heterosexual intercourse accounts for 80 percent of transmission of HIV cases. By the year 1994, an estimated 118,000 Ghanaians were living with HIV and the number more than tripled to about 404,000 in 2004 with a rise in the prevalence rate of 1.4% in 1994 to 3.6% in 2003. According to the Ghana AIDS Commission (GAC) 2011 report, the number of infected people is estimated to be 500,000 in 2015.

With the number of committees, Ghana has variously responded to the HIV/AIDS threat, beginning from 1985 with the setting up of the National Technical Committee on AIDS (NTCA). In 1987, the NTCA was replaced with the National AIDS/STD control programme (NACCP) which was based in the Ministry of Health as the coordinating body of the national response. In September 2000, the Ghana AIDS Commission was inaugurated to serve as the coordinating body for all HIV/AIDS related activities in Ghana. The objectives have been to reduce further transmission of infection and to mitigate the effects of HIV/AIDS on infected and affected people [8].

Reference [9] reviewed that among the factors that contribute to HIV/AIDS-related stigma are: a). HIV/AIDS is a life-threatening disease, hence, people react strongly to it; b). HIV infection is associated with socially abhorrent behaviours like homosexuality, drug addiction, prostitution or promiscuity, which are already stigmatized in many societies; c). The barrage of inaccurate information concerning the transmission of HIV creates irrational behaviour and misperceptions of personal risk; d). HIV infection is considered as resulting from personal irresponsibility; e) based on their religious or moral beliefs, some people believe that being infected with HIV is punishment for promiscuity; f). the effects of antiretroviral therapy on people's physical appearance can result in forced disclosure and discrimination based on appearance.

It is interesting to note that HIV/AIDS-related stigma is not a straightforward phenomenon as attitudes towards the epidemic and those affected vary massively. Within one country, for instance, reactions to HIV/AIDS could vary among individuals and groups of people. This difference in attitude toward the phenomenon, could be due to religion, gender, sexuality, age and levels of AIDS education [9]. It is difficult to assess the accuracy of this statement as levels of stigma are hard to measure and a number of small-scale studies have shown that the relationship between increased access to HIV treatment and a reduction in stigma is not always clear [10].

Moreover, as there are many types of stigma it is possible that the availability of treatment may reduce some types of stigma and not others. For example, a study in Tanzania found that, on the one hand, stigma caused by the perception of people living with HIV as weak and therefore a 'burden' on the community had decreased with the uptake of treatment [11]. On the other hand, 'fear based stigma' was found to have increased.

According to reference [12], the fact that stigma remains in developed countries such as America, where treatment has been widely available for over a decade, also indicates that the relationship between HIV treatment and stigma is not straightforward. An estimated 27 percent of Americans would prefer not to work closely with a woman living with HIV. Women with HIV or AIDS may be treated very differently from men in some societies where they are economically, culturally and socially disadvantaged. They are sometimes mistakenly perceived to be the main transmitters of sexually transmitted diseases (STDs). Men are more likely than women to be 'excused' for the behaviour that resulted in their infection: "Even a married woman who has been infected by her husband will be accused by her in-laws... In such a male-dominated society no-one ever accepts that the man is actually the one who did something wrong... It is even harder on women since it is seen as a fair result of their sexual misbehaviour [13].

The WHO cites fear of stigma and discrimination as the main reason why people are reluctant to be tested, to have their HIV status to take antiretroviral drugs. One study found that participants who reported high levels of stigma were more than four times more likely to report poor access to care [14]. These factors, according to the WHO, contribute to the expansion of the epidemic (as a reluctance to determine HIV status or to discuss or practice safe sex means that people are more likely to infect others) and a higher number of AIDS-related deaths.

A Research by the International Centre for Research on Women [15] found the possible consequences of HIV-related stigma to be: loss of income/livelihood; loss of marriage & childbearing options; poor care within the health sector; withdrawal of care giving in the home; loss of hope & feelings of worthlessness and loss of reputation. Some of these consequences refer to 'internal stigma' or 'self-stigma'. Internal stigma refers to how people living with HIV regard themselves, as well as how they see public perception of people living with HIV. Self-stigma and fear of a negative community reaction can hinder efforts to address the AIDS epidemic by perpetuating the wall of silence and shame surrounding the epidemic

Lack of confidentiality on the part of healthcare workers has been repeatedly mentioned as a particular problem in health care settings. Many people living with HIV/AIDS do not get to choose how, when and to whom to disclose their HIV status. Studies by the WHO in India, Indonesia, the Philippines and Thailand found that 34 percent of respondents reported breaches of confidentiality by health workers [7].

1.1 Literature Review

Every research work makes reference to or must make reference to existing works that are relevant to the issue under consideration,  this research is no exception. This section is, therefore, dedicated to reviewing relevant literature with the view to either replicating in the New Juaben Municipality what has been studied in other parts of the world or do what has not been studied yet.

The objective of reference [16] systematically reviews interventions that could improve adherence to ART, including individual-level interventions and changes to the structure of ART delivery, to inform the evidence base for the 2013 WHO consolidated antiretroviral guidelines. Their design was a rapid systematic review. They conducted a rapid systematic review of the global evidence on interventions to improve adherence to ART, utilizing pre-existing systematic reviews to identify relevant research evidence complemented by screening of databases for articles published over the past two years on evidence from randomized controlled trials (RCT). They searched five databases for both systematic reviews and primary RCT studies. They examined intervention effectiveness by different study characteristics, in particular, the specific populations who received the intervention. A total of 124 studies met their selection criteria. Eighty-six studies were RCTs. More than 20 studies have tested the effectiveness of each of the following interventions, either singly or in combination with other interventions: cognitive-behavioural interventions, education, treatment supporters, directly observed therapy, and active adherence reminder devices. Although there was strong evidence that all five of those interventions could significantly increase ART adherence in some settings, each intervention had also been found not to produce significant effects in several studies. Almost half (55) of the 124 studies investigated the effectiveness of combination interventions. Combination interventions tended to have effects that were similar to those of single interventions. Their results also showed that the evidence base on interventions in key populations was weak, with the exception of interventions for people who inject drugs.

The primary objective of reference [17] was to examine the association between health literacy, literacy, beliefs about medications, media use and adherence to antiretroviral treatment in HIV-infected adolescents. She used a cross-sectional descriptive survey design, a convenience sample of 50 HIV infected youth was recruited from four HIV clinical settings. The primary outcome was adherence to antiretroviral treatment and was measured with 3-day self reported adherence estimates. Instruments to measure the predictor variables of interest were the Test of Functional Health Literacy in Adults (TOFHLA), Beliefs about Medication Scale (BAMS), Rapid Estimate of Adult Literacy in Medicine-teen version (REALM-teen), and media use was evaluated with a brief investigator-developed questionnaire. She used logistic regression with the level of significance set to 0.05 to compute descriptive statistics, bivariate and multivariate analyses. Her results showed that the sample population included 50 participants, ages 13-24 years (median age = 20.4 years) either perinatally (n = 40) or behaviorally (n = 10) were infected. The median and mean +SD self reported adherence estimates were 100%

(range 0-100) and 86.0% + 26.92, respectively. Adherence estimates were highly correlated with HIV-viral load (Spearman's rho = -0.615, p = 0.000). Adequate levels of health literacy were demonstrated in 80.0% (n = 40) of youth. Below grade level reading was observed in 72.0% (n = 36) of participants, despite 48.0 % (n = 24) of the sample having completed high school and or currently enrolled in college. More than half of participating HIV-infected youth reported not spending any time reading offline (56.0%) or online (60.0%) and 74.0% reported going online during the preceding day. Using self reported 3-day adherence estimates (100% adherent, <100% adherent) in a fitted logistic regression model, health literacy was not predictive of adherence (p =0.152). Participants with higher positive outcome expectancy scores were significantly more likely to have self reported adherence estimates of 100% (Adjusted OR = 1.066, 95% CI = 1.018 - 1.117) and the odds of 100% adherence was significantly lower among the 63.9% (23/36) of participants with below age level reading, compared to the 85.7% of youth (12/14) with > age level reading and 100% adherence (Adjusted OR = 0.066, 95% CI = 0.005-0.831). Her findings provided support for the integration of beliefs into health literacy models with HIV-infected youth in the study of treatment adherence.

The efficiency of antiretroviral therapy (ART) depends on a near perfect level of patients' adherence. The level of adherence of adults HIV-infected patients treated in the HIV/AIDS health care centres of the association "Espoir Vie Togo" in Togo, West Africa is not properly documented. The aim of reference [18] was to examine by means of self-reports the knowledge, the adherence level and associated factors to antiretroviral therapy (ART) among these patients. They conducted a cross-sectional survey among adult people living with HIV/AIDS (PLWHA) through a structured questionnaire. According to their results a total of 99 patients were enrolled. Among them, 55.6% knew the name of antiretroviral agents of regimens prescribed. All patients had a good knowledge of treatment schedule. The treatment regimens based on 2 NRTIs + 1 NNRTI were used in 90% of patients. The average adherence rate was 89.8% of the total doses prescribed while 62.62% of patients showed an adherence rate of 95% or above. The treated groups were similar in term of median % of medication doses taken according to PLWHA epidemiological characteristics. 34.9% of patients reported forgetting, travel (25.6%), cost of treatment (13.9%) and side effects (11.6%) as the main factors of missing at least once a dose intake. Their results should encourage the association and all the involved actors in the HIV/AIDS's program to strengthen counseling, education and information interventions for HIV-infected patients in order to overcome the potential barriers of poor adherence.

Reference [19] conducted a cross-sectional study on HIV-infected adults being treated with antiretroviral drugs at a reference service in Southern Brazil. Participants answered a socio-demographic questionnaire and were tested by scales assessing socio-cognitive variables. Adherence to treatment was assessed by a self-report inventory developed for the study. Clinical information was obtained from the patients' records. They used univariate logistic regressions to conduct significance tests followed by multivariate logistic regression analysis. A total of 195 patients participated in the study and from their results 56.9% of them reported 95% adherence on the previous two days. In univariate analysis, the odds of adherence increased with self-efficacy in taking medications as prescribed (OR = 3.50, 95% CI 1.90-6.55), and decreased with perception of negative affect and physical concerns (OR = 0.71, 95% CI 0.53-0.95). The odds were lower for taking antiretroviral medications >4 times a day (OR = 0.44, 95% CI 0.20-0.94) and higher for patients with 8 years of schooling (OR = 2.28, 95% CI 1.12-4.66). In the multivariate analysis, self-efficacy (OR = 3.33, 95% CI 1.69-6.56) and taking medication >4 times a day (OR = 0.34, 95% CI 0.14-0.80) were independently associated with adherence. Self-efficacy was the most important predictor of adherence, followed by number of times antiretroviral medication was taken per day. They found out that among socio-demographic and clinical variables, only the number of years of schooling was associated with adherence. Motivational interventions based on self-efficacy may be useful for increasing treatment adherence.

Reference [20] found that adherence greater than 95% is needed to achieve virological success; however 22% of patients with an adherence level of over 95% experienced virological failure (i.e. a sharp increase in viral load) compared to 61% of patients with adherence between 80–94.9%, and 80% of patients with an adherence level of below 80%. A meta-analysis of studies of ART adherence found that a pooled estimate of 77% of patients in Africa achieved adequate adherence (>95% of prescribed pills) compared to just 55% of patients in North America. However, the relationship between adherence and the development of resistance differs by regimens; for example resistance to non-nucleoside reverse transcriptase inhibitors is significantly higher at low levels of adherence than that for protease inhibitors.

Investigating factors influencing adherence to antiretroviral treatment in Nepal, Sharada P. Wasti Padam Simkhada, Julian Randall, Jennifer V. Freeman, Edwin van Teijlingen observed that improving adherence requires a supportive environment; accessible treatment; clear instructions about regimens; and regimens tailored to individual patients' lifestyles. Healthcare workers should address some of the practical and cultural issues around ART medicine whilst policy-makers should develop appropriate social policy to promote adherence among ART-prescribed patients. They continue to state that prescribers hope that every patient completely follows their ART instructions, but it does not always happen like that, and the reasons are many. They are socio-demographic, cultural, economic, health-systems and treatment-related factors [20].

According to [21], once a person starts taking antiretroviral treatment, they have to take it exactly as prescribed, and for the rest of their life. If not, they significantly increase the risk of drug resistance. In addition, antiretroviral drugs often have unpleasant side effects and there are possible long-term effects of treatment, such as diabetes, body fat changes and potentially others that remain unknown. 'These are some of the reasons why in most settings treatment is currently only recommended when HIV has attacked the immune system to an extent where, without treatment, the person's health will start to deteriorate. For many people living with HIV this means not starting treatment for years. Starting treatment at an earlier stage could therefore potentially be detrimental to the individual's health.

According to reference [22], many factors identified in this study are consistent with the literature from both developed and developing countries. In this study, females reported poorer adherence than males as corroborated by care providers. This finding is unique since very few studies have reported that men were more likely to adhere to ART than women. This is an important finding in the Nepalese context, as women are treated differently and unequally due to socio-cultural and economic factors. Nepalese women are recognized to be ill by family members only when they are bedridden and the head of the household decides that they are seriously ill. Women in this study were less likely to disclose their HIV status (66.2% vs 70.2), and were more vulnerable to discrimination by others compared to male PLWHA (45.1% vs. 20.2%), both of which could be used to explain this finding. Different forms and types of HIV-related stigma exist such as self-stigma, perceived stigma and enacted stigma and these were barriers to adherence.

Distance to treatment centre is of great concern to PLWHA and one of the key factors preventing adherence in this sample. Patients who travelled more than one hour to hospital were more likely to be non-adherent and this was also discussed in the in-depth interviews. Participants stated that although patients were willing to take ART they became non-adherent because of difficulties in reaching the treatment centres due to unexpected transport and other strikes; long travel distance; geographical difficulty including lack of transportation services in many remote areas; and the seasonal deterioration of poorer roads during the rainy season. This has also been found to be the case with respect to maternity services in Nepal [23].

Reference [24] found that travel time and access to treatment centres were barriers to ART adherence and that better access to care was significantly associated with optimal adherence. Patients who are from rural areas have difficulties in travelling long distances and finding their travel costs, and have most to gain from nearby ART facilities. Although this benefit may be offset by patients who fear of disclosure and worry about others finding out, are still travelling to more distant sites. Thus, any new policy will need to address this issue and improve access to medical care services by integrating ART treatment into the mainstream of health care rather than concentrating treatment in a limited number of ART centres, which may be hard to reach for many patients.



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2. RESEARCH DESIGN AND METHODOLOGY

This chapter explains the methodology of the research. It talks about the research design and methodology, and then describes the study area. A sample size of 120 was selected at random from people living with HIV/AIDS in

the New Juaben Municipality and close-ended questionnaire administered to them. For readers to understand and better appreciate what the research seeks to establish, it is of untold importance to explain the modalities by which the research was carried out. Hence, this chapter presents the methodology of the study. The chapter is divided into two main parts: the first part basically presents the methodology of the study whereas part two will focus on the study area, including the major health institutions in the municipality.

The study employed the quantitative techniques in the process of collecting data; this was the case because the phenomenon of HIV/AIDS does not make most people comfortable to talk. All the PLWHA encountered were unwilling to grant in-depth personal interview, hence the decision not to employ the qualitative method to gather data. Structured questionnaires were administered to sample respondents.

2.1 Sample Technique

The research used probability sampling method, which gives all the sampling units equal chances or probability of being selected. This technique stands a higher probability of avoiding bias. Under the probability sampling, simple random samplings as well as snowball sampling were employed. With snowball sampling, infected people were used to identify other infected people. However, in order to ensure equal chance of selecting respondents from both sexes, stratified sampling by gender was employed.

2.2 Source of Data

Both primary and secondary data were used in the study. The primary data comprises information gathered from the survey by the researcher from administering structured questionnaire with the help of research assistants who have been trained to know how to approach the people. The secondary data include official reports and books, journal articles, as well as internet sources.

2.3 Data Analysis

The statistical package for social scientists (SPSS) 16.0 version was used to analyze the data. The SPSS was used to generate frequency tables, pie charts and bar charts as the occasion demands, to give picturesque representation of the findings. Then, the chi-square hypothesis testing was used to find out whether the statistics of the samples hold good for the parameters of the population.

2.4 The Study Area

This section of the chapter seeks to describe the study area and the facilities available to the people living with HIV/AIDS. The study area is the New Juaben municipality in the Eastern Region of Ghana. Koforidua doubles as the capital of the Eastern Region as well as the New Juaben Municipality. The Eastern Region, one of the ten administrative regions of Ghana, is located in the southern part of Ghana. The Eastern region shares boundaries with Lake Volta on the east, on the north by Brong-Ahafo region and Ashanti region. To the west the Eastern Region is bordered by the Ashanti region, to the south by the Central and Greater Accra regions. The dominant inhabitants and natives of the Region are Akans. Consequently, Akan and English are the main spoken languages. The region has 26 Districts; 7 municipalities and 19 Districts.

The population of the Region is 2,108,852 accounting for 11.5% of the entire population of the country. Since the New Juaben Municipality is the study area, the report will focus on a description of the Municipality [25]. The New Juaben Municipality covers an estimated area of 110 square kilometers constituting 0.57 % of the total land area of the Eastern Region. The Municipality is boarded on the North-East by East-Akim Municipality; Akwapim North District on the East and South and Suhum Kraboa Coaltar District on the west.

The New Juaben municipality has fifty-two towns and villages. Most of them have small population sizes that do not measure up to the threshold population for the provision of essential services like police stations, hospitals and institutions of higher learning. Consequently, economic, social, political and administrative activities in the municipality are concentrated in Koforidua, thereby making Koforidua the recipient of a mass influx of the population in the municipality.

According to the 2010 population census, the municipality has a population of 191,525 which is projected to be 195,547 by 2013, with a growth rate of 2.6%. Females constitute the dominant group, about fifty-two percent of the population.

Agriculture in the municipality mostly goes on in the small settlements at the periphery of the regional capital, Koforidua. Crops grown are mostly staples crops like maize, cassava, plantain, cocoyam, citrus and vegetables. Other crops like oil palm are processed into palm and kennel oil by small-scale mills. Cash crops like kola, cocoa are also grown in the municipality.

The Municipality has many educational institutes running from Pre-school to Tertiary. The schools are owned either by government, private individuals and religious bodies. New Juaben has one hundred and thirteen (113) pre-schools; forty-three (43) public and seventy (70) private. There are one hundred and twenty-eight (128) primary schools, of which eighty-four (84) are public and forty-four (44) are private. The Municipality has seventy-four (74) junior high schools made up of fifty-three (53) public and twenty-one (21) private schools.

There are six (6) public and eight (8) private senior high schools (SHS) in the district. The municipality has the highest number of senior secondary schools, vocational and technical schools in the Eastern Region. The New Juaben Municipality has one (1) College of Education, a Nursing Training School and one polytechnic and one private university, that is, All Nations University College.

The New Juaben Municipality has two full-fledged hospitals, namely the Koforidua Regional Hospital and the St. Joseph Hospital. The Regional hospital is a government hospital whereas the St Joseph Hospital is Catholic. The two hospitals serve people in the municipality as well as people from other municipalities and districts. That brings some level of pressure on the Institutions, yet, they continue to offer health services to the people. In addition, there are three (3) Health clinics, two (2) Community clinics, ten (10) private clinics and three (3) maternity homes.

There is also Intravenous Infusion Limited, an infusion manufacturing company, which prepares drugs and infusions and three other private medical laboratories. It was in these health institutions that the research was carried out, most especially the full-fledged hospitals.

Like many other districts and municipalities, the Koforidua municipality also has a health insurance scheme which was officially launched on 28th April 2005. The New Juaben Municipality has been divided into 71 Health Insurance Communities [25].

2.5 Chi-Square Goodness-Of-Fit Test

This procedure can be used to perform hypothesis tests about the percentage distribution of a population or the probability distribution of a random variable [26].

The **observed frequencies** (O) are the frequencies actually obtained from a random sample.

The **expected frequencies** (E) are computed by multiplying the *sample size* by the *appropriate probability* using the formula, $E = n \times p$, where n is the sample size and p is the appropriate probability.

2.5.1 Test Statistic for a Goodness-Of-Fit Test

Consider a Chi-square goodness-of-fit test in which the null hypothesis specifies the percentage distribution of a population or the probability distribution of a random variable. Suppose the sample size is large. Then, if the null hypothesis is true, the random variable,

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

has approximately a chi-square (χ^2) distribution. The number of degrees of freedom (df) is one less than the number of categories in the distribution [26].

2.5.2 Assumptions

1. State the null and alternative hypotheses.

2. Calculate the expected frequencies using the formula, $E = n \times p$, where n denotes the sample size and p

denotes the probability specified for the category in the null hypothesis.

3. Decide on the significant level (α).

4. The critical value is χ^2_{α} with $df = k - 1$, where k is the number of categories in the distribution.

5. Compute the value of the test statistic, $\chi^2 = \sum (O - E)^2 / E$, where O and E represent observed and expected frequencies respectively.

6. The decision rule is that if the test statistic (χ^2) computed is more or greater than ($>$) the critical value (χ^2_{α}), then reject the null hypothesis (H_0); otherwise do not reject H_0 .

7. State the conclusion in words [26].



3. DATA ANALYSIS AND RESULTS

This chapter is dedicated to presenting the data collected through the medium of structured questionnaire. The chapter will be organized around three sections: First the correlation between adherents to antiretroviral drugs on the part of PLWHA and its impact on their health status; to be followed by the fact of specific clinics administering antiretroviral drugs and its impact on the attitude of PLWHA towards ART and finally the impact HIV/AIDS related stigma has on the health status of PLWHA. After presenting the data on each of the hypotheses, a Chi Square hypothesis testing was done to find out if the statistics of the samples could be applicable to the parameters of the population, that is to say if a generalization could be carried out with any of the hypotheses. All the tables and figures were generated by the authors using the SPSS 16.0 and Microsoft Excel.

3.1 Attitude of PLWHA to Antiretroviral Drugs and their Health Condition

The first hypothesis of the study states that the attitude (positive or negative) of people living with HIV/AIDS to Antiretroviral therapy affects their health status. The Literature Review uncovered a mass of material that lends support to the hypothesis.

The next question on the attitude of respondents to ART was cross-tabulated with the gender of respondents to find out between females and males who are stricter with the ART. Table 1 presents the responses.

Table 1. Respondents' attitude to ART

What is your attitude to the prescribed regime?	Gender of respondents				Total	
	Female		Male			
	No.	%	No	%	No	%
Very Strict	54	45%	38	32%	92	77%
Not very Strict	5	4%	9	8%	14	12%
I rarely take it	5	4%	4	3%	9	7%
No response	5	4%	0	0%	5	4%
Total	69	57%	51	43%	120	100%

With the exception of the 12% who indicated that they are not very strict to the regime where 8% are men and 4% women, in all the other category of answers, the females were in the majority as shown in Table 1. What could be said is that since in majority of cases, it is women who spend much time with their children and care for the children, many women want to live longer and are, therefore, very strict with the regime. There is strict adherence in men than in women, but that observation is not supported by this study as the proportion of women who are strict to the adherence is higher than in men. Respondents were asked to back their attitude to the ART with reasons and their responses are found in Table 2.

Table 2. Reasons for respondents' attitude toward the ART drug

Give reasons for your attitude to the drug	Frequency	Percentage (%)
The disease will kill me anyhow	13	11%
My health has improved with the drug	88	73%
I don't experience any improvement in my health	5	4%
It is a spiritual disease	2	2%
I sometimes forget	10	8%
No response	2	2%
Total	120	100%

Table 2 showed that a significant majority of 73% of respondents said their health has improved with the ART, whereas 11% stated that the disease will kill them anyhow, that suggests a lackadaisical attitude to the regime. This response corroborates the attitude of rural people toward ART. Rural people believed that ART does not work because patients die eventually. Other responses include, I sometimes forget – 8%; I don't experience any improvement in my health – 4%, and it is a spiritual disease – 2%.

Table 3. Current health condition of PLWHA after the ART drug



How has your health been since you were put on the drug?	Frequency	Percentage (%)
It has improved tremendously	91	76
It is okay	21	17
It is difficult to tell	6	5
No response	2	2
Total	120	100

From Table 3, seventy-six percent of respondents stated that their health has improved tremendously, 17% said it is okay while 5% found it difficult to tell. Adding the first two categories of response, 93% of respondents could state that their health has improved after taking the drug. This finding goes  confirm that adherence makes ART effective. Comparing the data in Tables 4 and 3, respondents were asked if they could attribute to the change in their health status to the ART drug and their response.

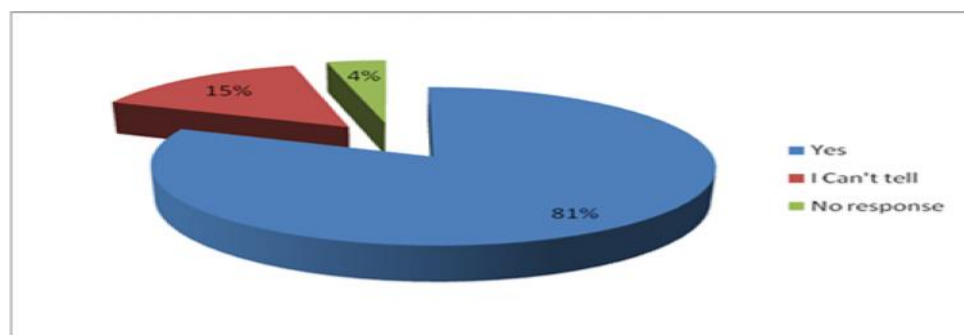


Fig. 1. ART and change in health condition of PLWHA

Fig. 1 showed that an unavoidable majority of 81% of respondents attributed the change in their health status to the ART while 15% said they can't tell and 4% declining. Following this lead, respondents were asked if they considered their attitude to the drug to be responsible for the change in their health condition. The response is shown in Table 4.

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457 **Table 4. Respondents' perception on the relationship between their attitude to**
 458 **ART and their health condition**



Do you, therefore, think that your attitude to the drug is responsible for your health status?	Frequency	Percentage (%)
Yes	94	78
No	2	2
I can't tell	19	16
No response	5	4
Total	120	100

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Seventy-eight percent had no doubts that their attitude to the drug is responsible for the improvement recorded in the health condition as shown in Table 4. The issue of attitude to the drug which has also been referred as adherence is largely believed to be responsible for improvement in the health status of PLWHA. Peterson and his colleagues argue that more than 95% adherence is needed to achieve biological success. The current study confirms what earlier researchers had established that there exist correlation between adherence and the health status of PLWHA.

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3.1.1 CHI-square Hypothesis Testing

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The hypothesis under discussion is that the attitude or adherence (positive or negative) of PLWHA to antiretroviral drugs affects their health status. The statistics of the samples confirm the hypothesis, that the more adherent PLWHA are to ART, the better their health status. The Chi-square (χ^2) Hypothesis Testing is to be sure whether a generalization could be made; that is to say, whether what has been found out could also be said about the parameters of the population.

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3.1.1.1 Making Assumptions

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The independent variable is the attitude or adherence of PLWHA to ART and the dependent variable, the health status of the PLWHA.

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Table 5. Observed Frequencies for attitude of respondents to ART and the health condition of PLWHA

How has your health been since you were put on the drug?	Do you, therefore, think that your attitude to the drug is responsible for your health status?				Total
	Yes	No	I can't tell	No response	
It has improved tremendously	78	2	8	3	91
It is okay	14	0	5	1	20
It is difficult to tell	2	0	5	0	7
No response	0	0	1	1	2
Total	94	2	19	5	120

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3.1.1.2 Stating the Null Hypothesis

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H_0 : There is no relationship between the attitude of PLWHA to ART and the health condition of PLWHA.

H_1 : The attitude or adherence (positive or negative) of PLWHA to antiretroviral drugs affects their health condition.

3.1.1.3 Choosing the Sampling Distribution and Establishing the Critical Region

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The distribution is Chi-square (χ^2) distribution

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Degree of freedom is calculated as follows: From Table 5, number of rows, $r = 4$ and number of columns, $c = 4$.

$$\Rightarrow df = (r-1)(c-1) = (4-1)(4-1) = 3 \times 3 = 9.$$

We found from statistical tables that for $df = 9$, $\chi^2_{0.05} = 16.919$ at 5% significant level.

3.1.1.4 Computing the Test Statistic

Table 6 depicts the computation of test statistic for Chi square obtained.

Table 6. Computing test statistics for χ^2 obtained for PLWHA'S attitude to ART and their health condition

Cells	Observed Frequency (O)	Expected Frequency (E)	$(O-E)$	$(O-E)^2$	$\frac{(O-E)^2}{E}$
1.1	78	71.28333	6.716667	45.11361	0.632877
1.2	2	1.516667	0.483333	0.233611	0.154029
1.3	8	14.40833	-6.40833	41.06674	2.850207
1.4	3	3.791667	-0.79167	0.626736	0.165293
2.1	14	15.66667	-1.66667	2.777778	0.177305
2.2	0	0.333333	-0.33333	0.111111	0.333333
2.3	5	3.166667	1.833333	3.361111	1.061404
2.4	1	0.833333	0.166667	0.027778	0.033333
3.1	2	5.483333	-3.48333	12.13361	2.212817
3.2	0	0.116667	-0.11667	0.013611	0.116667
3.3	5	1.108333	3.891667	15.14507	13.66472
3.4	0	0.291667	-0.29167	0.085069	0.291667
4.1	0	1.566667	-1.56667	2.454444	1.566667
4.2	0	0.033333	-0.03333	0.001111	0.033333
4.3	1	0.316667	0.683333	0.466944	1.474561
4.4	1	0.083333	0.916667	0.840278	10.08333
Total	120	120	0	0	34.85155

From Table 6, the test statistic for Chi-square χ^2 computed is $\sum \frac{(O-E)^2}{E} = 34.8516$.

Since χ^2 computed = 34.851 was more than the critical value $\chi^2_{0,05} = 16.919$. We rejected the null hypothesis H_0 successfully in favour of the alternative hypothesis H_1 . What can be said of the statistics of the samples could also be said of the parameters of the population. That allows us to make a generalization that the more PLWHA adhere strictly to the prescription of Doctors concerning ART, the better their health status can become.

3.2 Specific HIV/AIDS Clinics and the Attitude of PLWHA to Antiretroviral Drugs

The theoretical framework of the study maintains that in life and in a drama, people try to maintain a gap between their front stage and their back stage, otherwise they are discredited. People living with HIV/AIDS are no exception. It is never their intention to erase that necessary gap and thereby reveal their identity and their situation to other people for fear of stigma and discrimination. So the issue here is to find out whether PLWHA take their drugs from a specified clinic, and if yes, does the practice leave them discredited? So respondents were asked to identify the type of treatment most PLWHA prefer and 75% of them said they prefer orthodox treatment while 25% said they prefer herbal treatment. The next thing was to find out whether PLWHA are treated as out-patients or in-patients. The responses are stated in Table 7.

Table 7. Treatment of PLWHA in the hospitals

If orthodox, are PLWHA treats as out-patients?	Frequency	Percentage (%)
Yes	65	54
No	37	31
No response	18	15
Total	120	100

More than half (54%) of the respondents indicated that they are treated as out-patients, but a more significant proportion (31%) also said they are not treated as out-patients, whereas 15% of them refused to answer the question as shown in Table 7. However, the majority of them are treated as out-patients. Respondents were further asked to describe where they take their drugs, and 95% of them pointed out that they take their drugs from a specific treatment site, while only a comparatively insignificant proportion of 5% said they pick the drugs at the general dispensary of the Hospital or clinic as depicted in Table 8.

Table 8. Centres for administering the ART drug



Where do you take your drugs?	Frequency	Percentage (%)
Specific sites are designated for HIV/AIDS treatment	114	95
I pick the drugs at the general dispensary of the hospital/clinic	6	5
Total	120	100

As the issue is about stigma and discrimination, it was necessary to find from respondents if they feel comfortable about where they take their drugs. This was cross-tabulated with the gender of respondent with the view to finding out how the feelings are distributed along gender lines, and the results are shown in Table 9.

A bigger majority of respondents (56%) indicated that they are not comfortable taking their drugs from a specific site and out of that 30% were male and 26% female as shown in Table 9. What that means is that in matters of HIV/AIDS, men feel less comfortable than women to allow their back stage become front stage.

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After it had become so clear that a bigger majority feel uncomfortable taking their drugs from specific centres, respondents were asked to substantiate their answers and the responses are shown in Table 10.

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Given the nature of the question, respondents took the liberty to give multiple responses. Going back to the case of stigma and front stage or back stage, it becomes clear that one pertinent issue was that respondents did not want other people to know their positive HIV/AIDS status. Hence, the majority of respondents (33%) indicated that by going to specified centres for their drugs, other people can easily identify them as HIV positive. The next highest proportion of respondents (20%) observed that the situation breaches confidentiality. Some 19% of respondents also said they feel ashamed by the situation. Another response was that, respondents feel stigmatized by Society, a response which attracted 15% of respondents. Seven percent of the respondents said categorically that the scenario of having a specified clinic for administering ART destroys their back stage. All the answers converge on the fact that respondents feel that the scenario will leave them stigmatized and discredited. Afterwards, respondents were asked if the situation affects their attitude (adherence) to antiretroviral drugs, and their answers are shown in Table 11.

Age of respondent s	Does the situation affect your attitude (adherence) to antiretroviral treatment?									
	Yes		No		Somehow		No response		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Frequenc	Percentage (%)

	.	.	.	.	.	.	.	y	
20-24	2	2%	4	3%	2	2%	0	0%	8
25-29	11	9%	4	3%	0	0%	0	0%	15
30-34	8	7%	4	3%	0	0%	0	0%	12
35-39	14	12%	4	3%	0	0%	0	0%	18
40-44	16	13%	15	12%	0	0%	0	0%	31
45-49	12	10%	6	5%	0	0%	0	0%	18
50-54	5	4%	2	2%	0	0%	3	2%	10
55-59	2	2%	4	3%	0	0%	0	0%	6
≥ 60	2	2%	0	0%	0	0%	0	0%	2
Total	72	60%	43	36%	2	2%	3	2%	120

The responses were cross-tabulated with the age grouping of the respondents. Out of the 60% who consider the situation to be affecting their attitude to ART, 13% fall within the 40 – 44 age group followed by the 35-39 age with 12%. In general, when people advance in age, they get less shy, and as shown in Table 11, the paucity of proportions in the advance age groups substantiates the fact. Yet all the age groups see the situation affecting their attitude to ART. The irony is that, even, it comes to those who responded negatively to the question, the same 40-44 age group topped the percentage with 12%, comparatively higher than all the others. Two percent in the 20-24 age group stated that the situation affects their attitude somehow, while 2% in the 50-54 age group did not respond to the question. At this point, the question was put to respondents to find out if they think that in general the fact of having specified HIV/AIDS clinics affects the attitude of PLWHA to ART? The results are shown in Table 12.

Table 12. Respondents' perception on specified HIV/AIDS clinic and the attitude of PLWHA to ART

In general, would you say that the situation of specified HIV/AIDS clinic affects people's attitude to ART	Responses	
	Frequency	%
Yes	88	73
No	29	25
I don't know	3	2
Total	120	100

An overwhelming majority of 73% of respondents responded positively to the question whereas 25% answered negatively. Generally, most people want to remain discreditable and not discredited. Thus most people would be happy if they were not supposed to go to identifiable clinics to get their drugs, at least, they could maintain some gap between their front stage and their back stage.

3.2.1 Chi-Square Hypothesis Testing

The second hypothesis was that the fact of administering ART from specified or designated sites impact negatively on the attitude of PLWHA. The hypothesis testing is intended to find out whether finding that specified ART sites affects the attitude of PLWHA could be generalized to include all people outside the New Juaben municipality.



3.2.1.1 Making assumptions

The independent variable is the designated sites for ART and the attitude of PLWHA to ART, the dependent variable.

604 **Table 13. Observed frequencies for specified ART sites and attitude of PLWHA to ART**
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Does the situation affect your attitude to antiretroviral treatment?	Are you comfortable with the idea of having specific sites designated for HIV/AIDS treatment?			Total
	Yes	No	No response	
Yes	29	43	0	72
No	20	23	0	43
Somehow	0	2	0	2
	0	0	3	3
Total	49	68	3	120

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607 **3.2.1.2 Stating the Null hypothesis**

608 Ho: The fact of having specified ART Sites has no effect on the attitude of PLWHA to ART

609 H1: Administering antiretroviral drugs from specific health centers is likely to impact negatively on the
610 attitude of PLWHA to ART

611
612 **3.2.1.3 Selecting the Sampling distribution and establishing the critical region**

613 The distribution is χ^2 distribution.

614 Degree of freedom is calculated as follows: From Table 20, number of rows, $r = 4$ and number of columns, $c = 3$.

615 $\Rightarrow df = (r - 1)(c - 1) = (4 - 1)(3 - 1) = 3 \times 2 = 6$.

616 We found from statistical tables that for $df = 6$, $\chi_{0.05}^2 = 12.592$ at 5% significant level.

617
618 **Table 14. Computing test statistics for Chi-square obtained**
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Cells	Observed Frequency(O)	Expected Frequency (E)	$(O - E)$	$(O - E)^2$	$\frac{(O - E)^2}{E}$
.1	29	29.4	-0.4	0.16	0.005442
1.2	43	40.8	2.2	4.84	0.118627
1.3	0	1.8	-1.8	3.24	1.8
2.1	20	17.55833	2.441667	5.961736	0.339539
2.2	23	24.36667	-1.36667	1.867778	0.076653
2.3	0	1.075	-1.075	1.155625	1.075
3.1	0	0.816667	-0.81667	0.666944	0.816667
3.2	2	1.133333	0.866667	0.751111	0.662745
3.3	0	0.05	-0.05	0.0025	30.0125
4.1	0	1.225	-1.225	1.500625	1.225
4.2	0	1.7	-1.7	2.89	1.7

4.3	3	0.075	2.925	8.555625	114.075
Total	120	120	0		151.9072

Table 14 depicts the computation of the test statistic for Chi-square computed.

The χ^2 computed is $\sum \frac{(O-E)^2}{E} = 151.9072$.

Since the χ^2 computed = 151.9072 was more than the critical value $\chi_{0.05}^2 = 12.592$, we rejected the null hypothesis H_0 . We concluded that when ART is administered at specified sites, it affects the attitude of PLWHA to antiretroviral drugs. So what was said about the statistics of the sample could now be generalized to cover the parameters of the population.

4.3 HIV/AIDS Related Stigma and the Health Status of PLWHA

The phenomenon of stigma makes people recoil into their shells, and not participate publicly in society, and since it is in the nature of human beings to socialize with other people, stigma is one thing that everybody tries to avoid. Thus from the literature reviewed, it became clear that stigma affects the behavior and attitude of people, consequently, it was deemed necessary to look into the health status of PLWHA and the relation it has with stigma. First, respondents were asked to describe the attitude of health personnel toward PLWHA, and their responses are shown in Fig. 2.

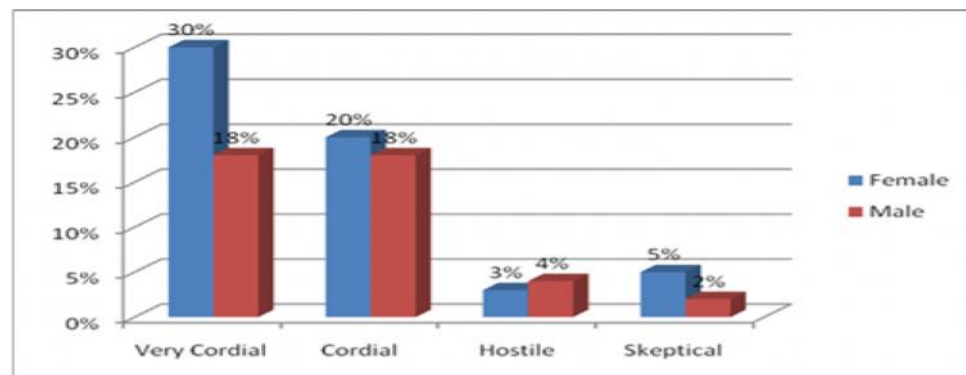


Fig. 2. Attitude of health personnel toward PLWHA

Forty-eight percent of respondents indicated that their attitude is very cordial. Out of the 48%, 30% are female and 18% male. That response was followed by 38% of respondents (20% female and 18% male) who reported that the health personnel exhibit cordial attitude to PLWHA. Only 7% of respondent said that health personnel are hostile and another 7%, that health personnel are skeptical as shown in Fig. 2. The situation in the New Juaben municipality where health workers are either cordial or very cordial, is different from that in India and Thailand where lack of confidence in health workers has made it difficult to address the HIV/AIDS situation.

After stating some of the HIV/AIDS related stigma, respondents were asked to indicate if they think that in general PLWHA are stigmatized, and their answers are shown in Fig. 3.

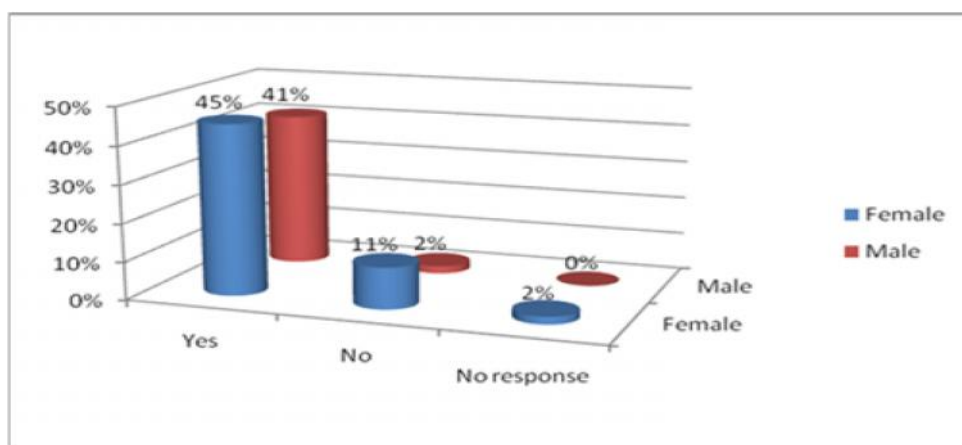


Fig. 3. Respondents' perception on PLWHA and stigma

The responses were cross-tabulated with the gender of respondents to show the responses are distributed along gender lines. Out of the 86% of respondents who responded positively to the question, 45% are female and 41% male. This means that both the female and male respondents feel about the same way toward the situation. Thirteen percent responded negatively to the question, but this time around, there were 11% female and 2% male, quite a big difference. So generally, we can conclude with the respondents that PLWHA are stigmatized. Subsequently, the question was put to find out if the situation of stigma makes it difficult for respondents to visit the HIV/AIDS sites. Their responses are shown in Fig. 4.

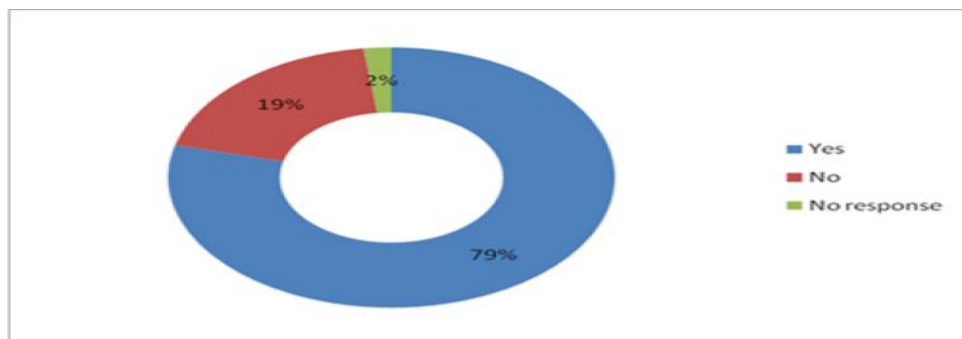


Fig. 4. The effect of HIV/AIDS stigma on visitation to the HIV/AIDS sites

A significant majority of 79% responded positively while 19% answered No to the question. Respondents were then asked to state if according to their assessment, HIV/AIDS stigma influence the health status of PLWHA. Their answers are shown in Table 15.

Table 15. The influence of stigma on the health condition of PLWHA

Do you think that the HIV/AIDS stigma influence the health status of PLWHA?	Frequency	Percentage (%)
Yes	111	93
No	6	5
No response	3	2
Total	120	100

From Table 15 a commanding majority of 93% of respondents are of the view that the stigma associated with HIV/AIDS influences the health status of PLWHA. As compared to the 93%, the 5% of those who indicated 'No' to the question is insignificant.

3.3.1 Chi Square Hypothesis Testing

The third hypothesis stated that HIV/AIDS related stigma affects the health status of PLWHA. When people feel stigmatized, they find it very difficult to go for the ART and take it as they should. The data supported the hypothesis, so the Chi Square testing will be used to figure out if the finding could be generalized to cover the entire population.

3.3.1.1 Making assumptions

The independent hypothesis is HIV/AIDS related stigma and the dependent hypothesis, the health status of PLWHA.

Table 16. Observed frequencies for HIV/AIDS stigma and the health condition of PLWHA

Do you feel stigmatizes in the midst of all these?	Do you think that the HIV/AIDS stigma influence the health status of PLWHA?			Total
	Yes	No	No response	
Yes	84	1	3	88
No	27	2	0	29
No response	0	3	0	3
Total	111	6	3	120



3.3.1.2 Stating the null hypothesis (H_0)

H_0 : HIV/AIDS related stigma has no effect on the health condition of PLWHA

H_1 : HIV/AIDS related stigma negatively affects the health condition of people living with HIV/AIDS

3.3.1.3 Selecting the sampling distribution and establishing the χ^2 Critical.

The sampling distribution is Chi Square distribution.

Degree of freedom is calculated as follows: $df = (r - 1)(c - 1) = (3 - 1)(3 - 1) = 2 \times 2 = 4$.

We found from statistical tables that for $df = 4$, $\chi_{0.05}^2 = 9.488$ at 5% significant level.

3.3.1.4 Computing Test statistic for χ^2 obtained

Table 17 depicts the computation of test statistic for Chi square obtained.

Table 17. Computing Test Statistics for Chi Square Obtained

Cells	Observed Frequency(O)	Expected Frequency (E)	$(O - E)$	$(O - E)^2$	$\frac{(O - E)^2}{E}$
1.1	84	81.4	2.6	6.76	0.083046683
1.2	1	4.4	-3.4	11.56	2.627272727
1.3	0	2.2	-2.2	4.84	2.2
2.1	27	26.825	0.175	0.030625	0.001141659
2.2	2	1.45	0.55	0.3025	0.20862069

2.3	0	0.725	-0.725	0.525625	0.725
3.1	0	2.775	-2.775	7.700625	2.775
3.2	3	0.15	2.85	8.1225	54.15
3.3	0	0.075	-0.075	0.005625	0.075
Total	120	120	0		62.84508176

From Table 17, the χ^2 computed is $\sum \frac{(O-E)^2}{E} = 62.8451$.

Since χ^2 computed = 62.845 was greater than the critical value $\chi^2_{0.05} = 9.488$, we rejected the null hypothesis H_0 successfully and concluded that HIV/AIDS related stigma negatively affects the health status of PLWHA.

4 SUMMARY, CONCLUSION AND RECOMMENDATIONS

The study set out to find out what factors influence the health condition of PLWHA. It intended to find out whether the attitude of PLWHA to ART affects their health condition; whether the fact of administering ART in specified sites affect the attitude of PLWHA and lastly, whether HIV/AIDS related stigma influences the health condition of PLWHA. Data were collected and analyzed as shown in Chapter Four. This Chapter consists of two sections: The first section comprises the summary of the major findings and the second section, the conclusion. The third section comprises recommendations.



4.1 Summary of Major Findings

According to the study more females (58%) were capture than males (42%). The age distribution shows that even though from the 50 years upward, the proportions go down, the data show that HIV/AIDS affect people of all ages. Also the study captured more Christians (63%) than other religions. It also became clear that people with only elementary/JSS and secondary/SSS/Vocational education constitute the majority of people infected, 34% each. From the point of view of employment, the self-employed are in the majority (41%). Prevalence is associated with higher salary levels (GH¢351 – 18% and GH¢401 – 39%). The data shows that married people are the most infected (44%) and out of that, 23% are male and 21%, female.

It became clear that respondents are more knowledgeable on HIV/AIDS; about 63% defined HIV/AIDS as 'Human Immunodeficiency Virus/Acquire Immune Deficiency Syndrome. Ninety percent of respondent indicated that HIV/AIDS is a viral disease, transmitted largely through sexual intercourse (24%), using unsterilized needles (22%) and blood transfusion (20%). Again respondents were able to list a number of symptoms: growing lean; protracted fever, loss of appetite, sores around the genitals, shingles and many others. Respondent knew that HIV/AIDS has no cure (93%) and that rather there is a treatment (98%), which is antiretroviral drug (80%).

The study found out that a good number of respondents (77%) are very strict with the prescription of the ART by a doctor, the rationale being that their health has improved with the drug (73%). Prior to taking the ART, their health was poor by a greater majority of them (76%) reported that after taking the drug, their health has improved tremendously. It was also noted that an overwhelming majority of respondents (81%) attribute the improvement in their health to the ART. Eventually, it was concluded that their attitude to the ART was responsible for their health status (78%)

It was discovered that most respondents (75%) stated that they prefer orthodox treatment and not only are PLWHA treated as outpatients (54%), but also they pick their drugs from specific centres/clinics earmarked for HIV/AIDS treatment. The study found out that most PLWHA are not comfortable with the fact of having to take their drugs from designated sites for the ART (56%). The reasons given for their reluctance to visit the specified sites are numerous; it makes me easily identified as HIV/AIDS patient by other people (33%); it breaches confidentiality (20%). Other reasons are: it makes me ashamed of myself (19%); I am stigmatized by society

(15%) and many others. It was also discovered that respondents blame the specifically designated clinics for their reluctance to pick their drugs (73%).

It was discovered that most respondents find the attitude of most health service providers to be very cordial (48%) and cordial (38%) whereas they found the general public to be discriminatory and negative. Consequently, most respondents feel stigmatized (73%) and stated that they perceive most PLWHA to be largely stigmatized. Giving the stigma, respondents indicated that they find it difficult to visit the HIV/AIDS sites (79%). Consequently, respondents were of the view that HIV/AIDS related stigma influences the health status of PLWHA (93%).

4.2 Conclusion

The data was basically quantitative and after the investigation, the data supported all the hypotheses, thereby leading to the following conclusion: that adherence on the part of PLWHA to ART affects their health status. In other words, if PLWHA stick faithfully to the ART dosage given them by doctors, their health improves and vice versa.

With regard to the second hypothesis, the data supported a position that PLWHA feel uncomfortable to visit specified sites for their drugs as that makes them easily identifiable as PLWHA, thereby making their back stage become front stage. So the study confirmed the hypothesis that having specific or identifiable sites for ART administration negatively affects the health status of PLWHA.

The third hypothesis was that HIV/AIDS related stigma affects the health status of PLWHA. The data analysis culminated in the affirmation that PLWHA feel stigmatized by the attitude of general public toward them and that makes it difficult to access the ART drugs. The consequent finding was that, HIV/AIDS stigma influences the health status of PLWHA. They fear that their back stage will become their front stage thereby leaving them discredited.



4.3 Recommendations

1. Family members must be encouraged to support their relatives living with HIV to adhere to the Doctors' prescription.
2. To make sure that people's back stage does not become their front stage, there should not be specified sites for the administration of ART; they must be administered at the general dispensary.
3. HIV/AIDS education must be intensified so that the general populace can become less apprehensive and less discriminatory.
4. Support groups should be set up, so that by counting on support from the group, they will not be overwhelmed by any discrimination from anybody.

REFERENCES

- [1] Mcsweeney Leonie (1991), AIDS Your Responsibility, Iperu Remo, Ambassador Publications.
- [2] UNAIDS (2012) 'World AIDS Day Report - Results'
- [3] WHO/UNAIDS/UNICEF (2011) 'Global HIV/AIDS Response: Epidemic update and health sector progress towards Universal Access 2011
- [4] Schoofs Mark (2011), The Yale AIDS Colloquium Series, Interdisciplinary Academic Forum for discussion of HIV/AIDS related issues.
- [5] UNAIDS (2011) 'UNAIDS World AIDS Day Report 2011.
- [6] Griffiths J.D., Lawson Z. & Williams J.E. (2006), "Modeling treatment effects in the HIV/AIDS epidemic", in *Journal of the Operational Research Society*, 1413-1424, 57(12).

- 806 [7] WHO (2008) 'Towards Universal Access: Scaling up priority HIV/AIDS interventions in the health sector:
807 Progress report 2008'
- 808 [8] Ministry of Health/Ghana Health Services, Sept. 2002.
- 809 [9] WHO (2003) Adherence to long-term therapies: evidence for action. Geneva: World Health Organization.
- 810 [10] Makoe LN et. al, (2009,) 'The impact of taking or not taking ARVs on HIV stigma as reported by persons
811 living with HIV infection in five African countries'
- 812 [11] Roura M (2009, September) "'Just like fever": a qualitative study on the impact of antiretroviral provision
813 on the normalisation of HIV in rural Tanzania and its implications for prevention' 9;9:22
- 814 [12] UNAIDS 2008 Report on the global AIDS epidemic.
- 815 [13] Leban IRIN/Plus News, 2005.
- 816 [14] Sayles J et al (2009, October), 'The Association of Stigma with Self-Reported Access to Medical Care
817 and Antiretroviral Therapy Adherence in Persons Living with HIV/AIDS' *Journal of General Internal*
818 *Medicine* 24(10).
- 819 [15] ICRW (2005), 'HIV-related stigma across contexts: common at its core'
- 820 [16] Chaiyachati, Krisda H.; Ogbuonji, Osondu; Price, Matthew; Suthar, Amitabh B.; Negussie, Eyerusalem
821 K.; Bärnighausen, Till (2006), "Interventions to improve adherence to antiretroviral therapy: a rapid
822 systematic review", <http://www.AIDSONline.com>)
- 823 [17] Ann-Margaret Navarra (2011), "Health Literacy and Adherence to Antiretroviral Treatment among
824 Human Immunodeficiency Virus (HIV) Infected Youth"
825 https://academiccommons.columbia.edu/download/fedora_content/download/ac:137864/CONTENT/Nav
826
- 827 [18] Yao Potchoo, Kpatcha Tchamdja, Agnon Balogou, Vincent P Pitche, Innocent P Guissou and
828 Etienne K Kassang (2010), 'Knowledge and adherence to antiretroviral therapy among adult
829 people living with HIV/AIDS treated in the health care centers of the association in Togo, West
830 Africa', <http://www.biomedcentral.com/1472-6904/10/11>
- 831 [19] C.A.T. Pinheiro, J.C. de-Carvalho-Leite, M.L. Drachler, V.L. Silveira (2002), "Factors associated
832 with adherence to antiretroviral therapy in HIV/AIDS patients: a cross-sectional study in Southern
833 Brazil". http://www.scielo.br/scielo.php%3Fpid%3Ds0100-879x2002001000010%26script%3Dsci_arttext
- 834 [20] Mills E, Nachega J, Bangsberg D, Singh S, Rachlis B, et al. (2006) Adherence to HAART: a systematic
835 review of developed and developing nation patient-reported barriers and facilitators. *PLoS Med* 3: e438.
- 836 [21] Kitahata M. et al (2011) 'Effect of Early versus Deferred Antiretroviral Therapy for HIV on Survival' *the*
837 *New England Journal of Medicine*, 360 (18)
- 838 [22] Bonolo PF, César CC, Acúrcio FA, Ceccato MGB, de Pádua CAM, et al. (2005) Non-adherence among
839 patients initiating antiretroviral therapy: a challenge for health professionals in Brazil. *AIDS* 19: S5–S13.
- 840 [23] Thomas D, Kc LM, Messerschmidt D, Devkota B (2004) Increasing access to essential obstetric care: a
841 review of progress and process. Kathmandu, Nepal: Nepal Safer Motherhood Project.
- 842 [24] Wasti SP, Randall J, Simkhada P, van Teijlingen E (2011) In what way do Nepalese cultural
843 factors affect adherence to antiretroviral treatment in Nepal? *Health Science Journal* 5: 37–47
- 844 [25] Cf. The Municipality Website, 2006.

850
851 [26] Neil A. Weiss (1997), "Introductory Statistics", 4th edition, USA, Addison-Wesley Publishing Company. Inc.
852

853

854
855