



Psychosocial Determinants of Adherence to Antiretroviral Drugs among Women Living with HIV and Aids in Huruma, Nairobi County, Kenya

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Abstract

Despite the numerous studies carried out on the effects of HIV/AIDS, its prevalence and control measures. There exists little information on the actual levels of adherence in sub-Saharan Africa, whose adherence levels are estimated to be 20%. To this end the study sought to establish the influence of psychosocial determinants of ARV use among women living with HIV and AIDS in Kenya. This study focused on the minimum level of adherence, identification of psychosocial determinants, influence and interventions used. The study used qualitative approaches in collecting data from women living with HIV/AIDS. The target population comprised of 300 women living with HIV/AIDS in Huruma area, Nairobi County. A sample population of 30 women was selected using the snow balling technique. The main research instruments were a structured interview guide and focus group discussions. The sample size comprised of 30 women living with HIV/AIDS, 10 healthcare givers and 10 women group leaders. Data analysis was carried out using the Statistical Package for Social Sciences (SPSS) version 18. The study found out that the level of adherence among women was 48.7%, compared to internationally accepted adherence levels of 95%. The most serious psychosocial aspects of adherence were depression, anxiety and feeling of hopelessness, stigma, discrimination and inadequate food supply. The cost of transport was prohibitive in seeking medical attention. Creation of awareness, reduction of the medicine and number of times the medication is taken were found to be the most possible interventions.

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The study recommends that prudent measures are put in place to inspire the patients towards adherence to ARV medication. The study suggests that a nationwide to determine the level of adherence to ARV's. The study concluded that psychosocial determinants influence adherence to use of ARV's.

Keywords: Psychosocial; determinants; influence and interventions; Antiretroviral Drugs

1. Introduction

Acquired Immune Deficiency Syndrome (AIDS) is one of the most destructive epidemics the world has ever witnessed. Presently an estimated 33.4 million people are living with HIV worldwide, nearly two-thirds of these live in sub-Saharan Africa [1] Antiretroviral therapy (ART) has shown to delay progression to AIDS, resulting in a greater and more sustained virologic and immunologic response [2] and improve survival [3].

The clinical efficacy of antiretroviral therapy (ART) in suppressing the HIV virus and improving survival rates for those living with HIV have been well-documented [1]. In the USA, the development of highly active adherence to antiretroviral therapy has helped turn HIV infection into a relatively manageable, though still serious chronic disease, compliance remains one of the major challenges in managing medication for patients living with HIV infection [4].

The American studies have produced consistent results that need to be explored for their relevance and transferability to local priorities and settings. This study, will specifically seek to address the psychosocial factors that determine adherence to ARV medication.

In a study among Colombian women living with HIV that aimed at assessing the relationship between antiretroviral adherence and social position among Colombian women with HIV/AIDS; it was found out that adherence to treatment in Colombian HIV positive women is determined by their social position. This finding indicates that research on antiretroviral adherence and the concept of adherence itself should include a "social determinants of health" perspective in order to maximize the likelihood of obtaining better clinical outcomes. There are only very few studies that investigate adherence to ARV use in sub-Saharan Africa.

Africa faces other major problems like unemployment, which leads to poverty that is further compounded by the negative impact of HIV/AIDS.

In Nigeria, a study by [5] indicated that women are more affected than men. The study further indicates that this difference might be aggravated by psychological and social aspects including gender-based violence such as rape and domestic violence. It's important that suitable measures are undertaken to ensure adherence to the use of ARV's among women in most African societies. The study only suspected but didn't address the psychological factors that influence adherence to ARV's amongst women.

A study carried out on antiretroviral adherence in rural Zambia suggested that psychosocial factors surrounding stigma fears and resultant concealment of HIV status are key determinants of adherence among rural Zambians receiving antiretroviral drugs [6]. In sub-Saharan Africa, there has been a dramatic increase in the number of

HIV/AIDS patients on antiretroviral treatment from just 100,000 persons in 2003 to 3.9 million in 2009 involving close to 40% of those in need of the treatment [7]. Two sub-Saharan Africa countries, Botswana and Rwanda, have achieved universal access target (treatment coverage of 80% or more of patients in need) at the end of 2009, while countries such as Ethiopia, Zambia, Namibia, and Senegal are moving closer to the same target having covered 50–80% of patients in need of treatment [8].

In South Africa, non compliance to the highly active antiretroviral medication is under explored phenomena. Consequently, an understanding of the factors influencing compliance is still incomplete. Based on this argument by [4], this study aimed at exploring the psychosocial factors that determine the level of adherence to use of ARV's among women in Huruma, Nairobi County, Kenya.

It is further challenged by various social and clinical obstacles where inadequate suppression of viral replication by ART are resulting due to poor adherence to therapy, low potency of the antiretroviral regimens, viral resistance to antiretroviral medications, and pharmacokinetic interactions causing inadequate drug delivery [9]. The transmissibility of the antiretroviral resistant viruses from person to person further compounds the problem as a clinical and public health challenge [10].

Non-adherence studies are still in the exploratory phase, especially in Kenya; and as a result, explanations for this phenomenon are not yet fully developed. The advancement in the medical field has given more hope to those living with the condition for long-term survival and a better quality of life [11]. The current adherence to the antiretroviral in most African nations is wanting and thus the need to find out the situation in Kenya.

Achieving and maintaining the health benefits of this medication requires near perfect adherence which most patients do not achieve. [12], point out that twenty antiretroviral products are available in African countries. Yet, fewer individuals are seriously taking the medications as prescribed by the physicians.

High levels of adherence are necessary for the medication to be effective and to minimize the viral load and prevent drug resistance among women living with HIV/AIDS. Achieving this elevated level of compliance remains the concern in Kenya and East Africa as whole [1]. When contrasted with treatment for most chronic conditions, highly active antiretroviral medication requires an adherence rate as high as 95% in order to obtain a successful, long-lasting effect [13]. It has become imperative that medication non-compliance, especially in cases of HIV/AIDS patients, warrants more attention by the Ministry of Health thus as a whole in order to assist the health caregivers so that they can modify their approach where necessary. This study will specifically focus on psychosocial determinants of adherence to antiretroviral drugs among women living with HIV/AIDS in Kenya.

The authors in [1] points out that ART increases the length, quality of life, and productivity of the people living with HIV (PLWH) by improving survival and decreasing the incidence of opportunistic infections through reduction of the viral load and increase of the level of CD4 cells recognizing this, the government has done a lot to introduce the treatment [14].

Despite the gains made in the fight against HIV, the dynamic nature of the epidemic continues to pose challenges to the medical field. Notable among this is the movement of the epidemic from populations at risk to general populations, a fact which places everyone at risk and compounds prevention programs. Another critical challenge in the fight has been the low rate of enrolment into treatment programs, a situation driven by low access to ARVs. In Sub-Saharan Africa for instance, only about 20% of those eligible for ARVs are currently enrolled in the program [15].

The fact that Kenya is still a developing nation, the study therefore sought to establish the psychosocial determinants of adherence to use of ARV's among women living with HIV in Huruma Nairobi County, Kenya.

1.2 Statement of the Problem

Despite the widespread knowledge about the pathogen that causes the most dreaded and significant emerging infectious infection of the 21st century that continually threatens to create health, social and development problems, in this millennium. Control and treatment of the Virus that causes HIV/AIDS is indeed a challenge not only to individuals living with it, but also to health practitioners and nations world over. Even with the degree of government commitment in fighting HIV/AIDS that is visible through its well developed public sector ART program. Prevalence of the infection has been attributed to a confluence of factors. More so, efficacy of antiretroviral treatment (ART) depends on strict adherence to the regimen since resistance can develop with inconsistent use of medication, but many factors have been identified for non adherence. It important to note that the consequences of poor adherence include not only deteriorating health for patient but also poses public health concern with heightened possibilities for development of multi-drug resistant HIV similar to that observed among Tuberculosis (TB) patients [16,15].

This study therefore sought to identify the psychosocial determinants of adherence to antiretroviral drugs among women living with HIV and AIDS in Huruma area of Nairobi County, Kenya. The study also determined ways in which the psychosocial determinants influence adherence and how best to deal with the challenges associated with non adherence.

1.3 Purpose of the Study

The purpose of the study was to establish the psychosocial determinants of adherence to the use of antiretroviral drugs among women living with HIV and AIDS in Huruma area, Nairobi County, Kenya. The study also focused on the influence of psychosocial environment on adherence while seeking ways of enhancing use of the retroviral medication among women living with HIV and AIDS in Kenya.

1.4 Objectives of the Study

1. To determine the minimal level of adherence to the use of antiretroviral drugs by women living with HIV/AIDS in Huruma slums, Nairobi County, Kenya.
2. To establish the psychosocial determinants of adherence to use of antiretroviral drugs among women living with HIV and AIDS in Huruma slums, Nairobi County, Kenya.

3. To establish the level of influence of psychosocial determinants of adherence to antiretroviral drugs among women living with HIV/AIDS in Huruma slums, Nairobi County, Kenya.
4. To suggest ways that may help medical staffs and women group leaders to develop suitable interventions for adherence to antiretroviral medication among women living with HIV/AIDS in Huruma area, Nairobi County, Kenya.

1.5 Research Questions

1. What is the minimal level of adherence to use of antiretroviral medication among women living with HIV/AIDS in Huruma slums, Nairobi County, Kenya?
2. What are the psychosocial determinants of adherence to use of antiretroviral drugs among women living with HIV/AIDS in Huruma slums, Nairobi County, Kenya?
3. To what extent do the psychosocial determinants influence adherence to antiretroviral drugs among women living with HIV/AIDS in Huruma slums, Nairobi County, Kenya?
4. What interventions may help mitigate the challenge of non adherence among women living with HIV/AIDS in Huruma slums, Nairobi County, Kenya?

1.6 Justification of the Study

A high percentage of the women living with HIV/AIDS are struggling with the medication, some unwilling to use the medication due to the stigma and HIV related psychosocial challenges in the society.

More, so the studies carried in the world over have mainly concentrated on the effects of HIV/AIDS, laying emphasis the 95% adherence levels, without specifically providing the way forward on how the high level of adherence can be achieved.

Studies on sub Saharan Africa, indicate a 20% adherence level, this is far below the recommended levels for effective use of the antiretroviral drugs. Achieving and maintaining the high benefits of the regimens is an enormous task that most patients struggle with. This implies that suitable interventions must be put in place in order to alleviate the levels of adherence to medication.

This particular study, therefore sought to find out the psychosocial determinants that influence adherence levels to ARV medication. As well as find out the effects of the factors on achievement of the 95% adherence levels.

1.7 Significance of the Study

The level of adherence to the use antiretroviral drugs in Sub-Saharan Africa is estimated to be 25%, most of who do not comply with the medication. The study findings will therefore be of significance to women living with HIV/AIDS in Huruma area, Nairobi County, Kenya, as it will help them develop a positive understanding of the various determinants of their adherence to the use of ARV's. This will enable them to be able to adhere to the medications as prescribed by the health practitioners.

It significantly contributed to the knowledge base on the critical level of adherence to use antiretroviral drugs among HIV patients. This is of critical importance as the efficacy of the medications requires over 95% adherence to ARV's. This study will seek to find out the psychosocial determinants before seeking interventions to overcome non adherence.

This increasing number of people getting infected means there are more people being initiated into treatment programs. Moreover, many people with living with HIV [17] will be able to engage them. Identifying the psychosocial factors that cause non-adherence will enable the development of adherence enhancing interventions and put in place adherence supportive mechanisms.

The knowledge gained from this study combined with existing studies, may be able to assist healthcare workers in prediction of adherence. The rationale being that, if the health care givers can be able to predict non compliance, then they can also be able to institute multi-component cognitive intervention measures including psychosocial factors. The findings of the study should also serve as a point of reference for reviewing current healthcare guidelines for people living with HIV/AIDS in Kenya.

1.8 Scope of the Study

The study mainly involved women living with HIV in Huruma area in Kamukunji district, Nairobi County, Kenya. While these may lead to the challenge of generalizability of the findings, the researcher will ensure selection of a representative sample. The Huruma slum is home for thousands of Kenyans, more accessible and served by a wide range of international organizations and agencies dealing with HIV/AIDS. The focus was on psychosocial determinants and how they influence adherence to ARV's use among women living with HIV/AIDS.

1.9 Study Limitations and Delimitations

The study was limited to adherence to use of ARV's by women living with HIV/AIDS in Huruma, Nairobi County. The questionnaire in itself may pose a challenge as the respondents will be limited to particular items. This limited the level of bias in handling the issue, prompting triangulation of data and assurance of the respondents of their confidentiality.

The study delimited itself to assessing the psychosocial determinants that affect the level of adherence to antiretroviral medication among women living with HIV/AIDS. This is a deliberate effort that will be used to address the problem of adherence to the antiretroviral drugs. [18] points out, that deliberate efforts must be made in order to achieve set goals of graduating individual.

1.10 Assumptions of the Study

The study assumed that, the respondents were willing to provide honest answers to the questions without biasness.

The respondents were not be exposed to health risks or discomfort associated with HIV/AIDS.

Majority of the women living with HIV/AIDS were aware of the relevance of the use of the antiretroviral medications but do not comply with the adherence as required.

1.11 Definitions of Operational Terms

Adherence: Refers to the focus on both medication and health-related behaviours, in patients living with HIV/AIDS that include seeking medical attention, filling prescriptions, taking medication appropriately, obtaining immunizations, attending follow-up appointments, executing behavioural modifications that address personal hygiene, risky sexual behaviours, unhealthy diet and insufficient levels of physical activity.

Antiretroviral medication: Refers to all forms of medication and medical support accorded to individuals living with HIV/AIDS through use antiretroviral drugs, proper feeding and control of opportunistic infections among patients.

ARV's - Drugs administered as part of HIV clinical care Level 5 health facilities - The government of Kenya categorization for provincial hospitals.

Compliance

This is defined as the extent to which a person's behaviour (in terms of taking medication, following diets or existing lifestyle changes) coincides with medical or health advice.

Cordial relationship: This is a mutual relation between the patient and the doctors that acts as a motivation for compliance with ARV medication.

Depression: This active mental illness related to non adherence to ARV medication

Emotional responses: This are reactions by the patients towards particular changes within their social environment e.g. fear of rejection

Level of adherence: Is the extent to which the psychosocial factors influence adherence to use of ARV medication.

Minimum level of adherence: Refers to the lowest level of adherence achieved by HIV and AIDS individuals by taking the drugs as prescribed by the physician.

Non-compliance: This refers to any patient who, on taking a history, admits to having not taken medication as prescribed and/or did not attend follow-up visits as recorded in the patient file.

Readiness: Is a conscious awareness on the part of the individuals that they, of their own will, have considered and determined that a particular change will be beneficial.

Self efficacy: Is the patient's belief that he or she can organize and execute the course of action required to perform a particular activity.

Side effects: These are the adverse effects that the patient is subjected to when taking ARV medication or prescriptions like drugs, e.g. itching, irritation, and swelling.

Social support: This the attachment among individuals or groups which improves adaptive competence in dealing with short term crisis or lifetime transitions as well as lifetime challenges.

Stigmatizing attitudes: These are discredits an individual receives in the eyes of others.

Violence: This refers to physical, emotional or verbal harm caused to those living with HIV and AIDS.

2. Methodology

This study used a qualitative research design that utilized the snow ball technique to identify respondents from whom data will be collected. The design was ideal for the study as it was using unstructured responses to draw up conclusions on the variables of study. The design also enabled the researcher to describe the phenomenon in a systematic and accurate way that enabled making of inferences while also establishing relationships among the independent and dependent variables. The study used the inferential (qualitative) statistics to collect and analyze data in order to achieve maximum benefits.

Qualitative approaches were used because the study endeavours to establish psychosocial determinants that influence level of adherence to ARV medication which are quite difficult to quantify. More so, HIV and AIDS more often fear to disclose their status due to the fear of facing social rejection. Thus to collect in depth information, a structured interview guide will be used. The quantitative methods were used since the study has to deal with statistics of women living with HIV and AIDS. Data collected from interviews was also being presented in verbatim with consent of the respective respondents.

2.1 Location of the Study

The study was carried out among women living with HIV/AIDS in Huruma area of Nairobi County, to address the challenge of non adherence to the use of the antiretroviral drugs. The sprawling Huruma slums provide an ample environment for the study as most women in the area are highly exposed to the HIV/AIDS, and the chance of 95% adherence level to ARV use is limited despite efforts made by the Government, NGO's and other international agencies operating in the area.

2.2 Target Population

The target population comprised of all women living with HIV in Huruma area, of Nairobi County. It's from this population that the sample population was selected. In order to maintain confidentiality of the participants, the researcher collected information from a few selected women from the target population. Women are

believed to be more vulnerable to the HIV infection than their male counterparts due to the level of exposure. Thus the study sought to obtain information from women living with HIV but on ARV medication in order to determine the level of adherence.

The accessible population covered in this study was women living with HIV and receiving ARV medication. The Huruma women group was chosen because of the high level of vulnerability and exposure to the HIV risks. Huruma slum is an ideal location for the study as it's easy to reach by the researcher. The facility is also within proximal distance to the researcher and serves the vast majority of women living with HIV in the County. Available ART information indicates that approximately 300 women in the area receive HIV care support services. There was need to determine the psychosocial determinants of adherence to use of ARV's among women living with HIV/AIDS in Huruma slum, Nairobi County, Kenya.

2.3 Sample Size and Sample Selection

The study sample population was drawn from the target population of women living with HIV/AIDS. The study sample population comprised of 30 women that make the Huruma Women Group for women living with HIV. Huruma is Kamukunji Sub County, Nairobi County in Kenya. The study used purposive sampling to select the members of the Huruma Women Group from which the sample population was drawn. This was necessary as a result of the established rapport with the women group leadership and members.

2.4 Data Collection Procedures

Data collection involved collection of both primary and secondary data on the level of adherence among women living with HIV in Huruma slums of Nairobi County. In order to collect primary data, the researcher used structured questionnaires that had both open and closed ended items. The open ended questions provided an opportunity to the women to freely express themselves, while the closed ended questions enabled the researcher to obtain specific information from the women that is necessary for success of the study.

The questionnaires had sections based on the research themes and they were distributed to the women by the researcher. The women were identified through the snow balling method, which provides privacy to the women who gave information on the ARV medication. The researcher ensured that all the questionnaires have the right content validity. The internal consistence with which the research instrument would be used to obtain reliable information will also be determined. Information was obtained from the healthcare givers, in order to develop an understanding of the influence of the psychosocial determinants of adherence to ARV's among women living with HIV in Huruma area, Nairobi County in Kenya.

2.5 Research Instruments

The main research instruments were interview guides. The study used structured interview guide. However, focus group discussions were also conducted among the women in groups of fives. The interview guide had questions that were based on the study objectives. These formed the basis of the data collection. In order to obtain, accurate measurement of adherence is a challenge to researchers and researchers have opted to use more

than one measure to allow for triangulation of information and compensation of the tools [19]. Three methods were used to measure adherence; subjective measures of adherence based on self-reports; measures of adherence e.g. pill count, pharmacy refill records; psychosocial measures of adherence e.g. plasma HIV RNA levels, CD4+ counts and laboratory reports [20].

This study used the self report method as this will be a social encounter and easy to carry out. This will be done by the researcher filling the questions that gave an account of the information. While interviews with healthcare providers were used to assess the level of adherence through medication measures among the women.

The study used the interview guide to obtain information from the healthcare givers and women leaders living with HIV/AIDS on the level of adherence to use of ARV's. The interview guide comprised of open ended questions that enabled the researcher to obtain more detailed information. However, the researcher also requested the respondents under interviews to allow for voice recording.

2.6 Validity of the Research Instruments

Validity is the extent to which a given tool measures what it purports to measure. [21] defines it as the degree to which results obtained from analysis of the data accurately represents the phenomenon under study. Validity of the research instruments was determined using expert help from experienced university staff. Validity of the research data collection tool will be obtained by testing the extraneous variables. An adequate number of data collection tools were prepared in order to enable the researcher to collect reliable information.

2.7 Reliability of the Research Tools

Reliability is the ability of a research tool or item to consistently produce the same results when used in subsequent tests. The research instrument therefore consistently produces the same results. To achieve reliability, researcher must control for random errors due to inaccuracy in scoring, inaccuracy of the instrument or unexplained error [22]. To strengthen the reliability of the tool, the Cronbach's method will be used.

The Cronbach's Coefficient Alpha (K-R 20) was computed on the items to establish their correlation using the formula below.

$$KR_{20} = \frac{K(S^2 - \sum s^2)}{(S^2)(K-1)}$$

Where:

KR_{20} = reliability of coefficient of internal consistency

K = Number of items used to measure the concept

S^2 = Variance of the scores

s^2 = Variance of individual items

Cronbach's Coefficient Alpha (K-R 20) measures internal consistency which involves correlating a score in one item with scores obtained from other items in the instrument (split half technique). If application of the formula yields a coefficient of 0.80 and above this implied a high correlation among the items and thus internal consistency of the tool.

It is important therefore that a pilot study was carried out in order to ensure that the tools are valid and reliable. This will also help avoid ambiguity and illicit the type of data that enabled the researcher to determine the level of adherence among the women. The individuals who participated in the pilot study were not allowed to participate in the final study.

2.8 Data Analysis Techniques

Data collected from the women and health care givers was systematically organized, coded and entered in a code book. Data analysis involved collection and editing, coding, tabulating and carrying out the analysis. It is expected that the study yielded inferential data. Since the study will yield qualitative data, qualitative techniques of data analysis was used including paraphrasing statements from the respondents. Qualitative data from focused group discussions was categorized by theme for analysis and categorization, verified by two independent experts. The data was analyzed using the Statistical Package for Social Sciences for windows version 18.

To establish relationships between variables, the researcher calculated the coefficient of correlation using the Pearson Product Moment correlation. This enabled the researcher to ascertain the reliability and validity of the results and conclusions that made from the study.

2.9 Logistical and Ethical Considerations

The researcher sought approval to undertake the research study from the National Council for Science and Technology (NCST) and Mt. Kenya University for official permission to contact the study. The researcher also sought consent to conduct the study from the women living with HIV in Huruma, Nairobi County through their team leaders.

The researcher also assure the participants of their confidentiality while letting them know that information collected specifically be for the purpose of these study. The researcher arranged to ensure that only those participating in the study are identified and interviewed. In case, any information is reported verbatim, the consent of the respondent will be sought.

3. Discussion of the Findings

3.1 Adherence to the level of Adherence to ARV's

Studies on ARV adherence indicate that in order for the medication to be effective the patients must strictly observe a 95% level of adherence. This is not the case in sub Saharan Africa as reports indicate a very low level of adherence.

3.2 Meaning and level of adherence among women living with HIV/AIDS

The researcher found out from the focus group discussion that the women understood adherence as ‘taking of the prescribed drugs at the prescribed times’.

To ascertain this researcher sought to find out the level of adherence among the women living with HIV/AIDS. The findings are presented in Table 4.2

Table 1: Level of Adherence to the ARV medication

Adherence to medication	Never	Rarely	Sometimes	Most of the time	All the time
Took all prescribed medicine last time			3.3	0	96.7
Took medicine prescribed medicine at right time			3.3	20.0	76.7
Attended all my clinics in last three months			3.3	3.3	93.3

The study found out from 96.7% of the women living with HIV/AIDS that they took all the prescribed medicine in the one last month, while 76.7% said that they took all the prescribed at the right times. A majority (93.3%) of the women indicated that they attended all their clinic appointments. Majority 57.1% of the health care givers were of the opinion that they attended to the appointments on the day of ARV appointment with the patients, with 28.6% reporting a day before the date.

Successful antiretroviral therapy is dependent on sustaining high levels of adherence (correct dosage, taken on time, and in the correct way either with or without food). The minimum level of adherence required for antiretroviral drugs to work effectively is 95% [23].

According to 14.3% of the health care givers, they take more than one month to attend to appointments. This in itself is inefficiency that strongly contributes to non adherence. The focus group discussion showed that all the women are unable to adhere with the ARV medication. Therefore, the level of adherence was established to be 48.7% among the women living with HIV/AIDS. This is based on calculations involved determining drug adherence, attendance to clinics. These findings are in line with the [15] that for the ARV’s to be effective an adherence level of 95% must be attained. As [16] argue the patients failure to adhere to the ARV’s drug regimens.

3.3 Reasons for non adherence to ARV medication

According to the focus group discussions, the women cited poor timing (60%) and alcoholism (20%) as the main reasons for non adherence. One group did not provide the reasons for non adherence. Findings from the interviews with the health care givers and women group leaders indicated that most patients do not adhere to the medication due to the negative effects of the drugs as pointed out by 35.7%. This finding is in line with [24], who said that patients usually discontinue HAART medication due to the true or perceived side effects. Side effects that can be treated effectively include fatigue, nausea and stomach pains. Side effects like lip dystrophy cannot be treated successfully; in such instances a change in the regimen of medication should be considered.

Lack of proper communication between the health care workers and the patients were cited as some of the causes of non adherence. Although, 28.6% of those interviewed felt that forgetfulness and distance from the health facilities contributed to non adherence among the women. This finding is in line with [20] Reisner et al (2009) found adherence levels varied from as low as 28.3% to 69.8%. Similar results are reported by [25] who found an average adherence rate of 55% among the same populations. The Kenyan women level of adherence is within the ranges as found out by the studies carried out in North America.

3.4 Psychosocial determinants that influence adherence

The study sought to find out the psychosocial determinants that influence the level of adherence among women living with HIV/AIDS. The study findings are discussed under the psychological and social aspects of adherence to ARV medication.

3.4.1 Psychological factors that influence adherence

The study findings indicated that that presence of psychological factors influenced adherence to the use of the ARV medication among the women living with HIV/AIDS as reported by 92.9% of the health care givers and women group leaders.

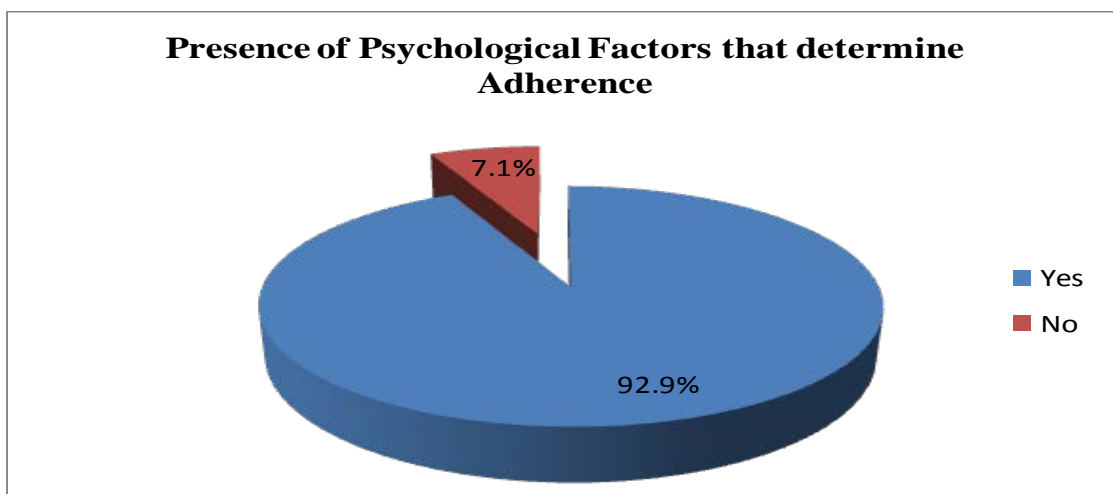


Figure 1: Presence of Psychological determinants of adherence as reported by the women living with HIV/AIDS

Only 7.1% reported that there were no psychological determinants of adherence to ARV medication. All the members of the focus group discussions concurred with the health care givers and women group leaders that there are psychological determinants of non adherence.

Majority (85.7%) of the health workers interviewed and the women group leaders totally agreed that the psychological factors had influence on the levels of adherence.

Study findings from the focus group discussions indicated that there were three major psychological factors that influence adherence to the medication. The main factor is stigma (40%), self denial (20%) and non disclosure (20%). This finding is in agreement with that from the health care givers who felt stigma accounted for 60% of non adherence.

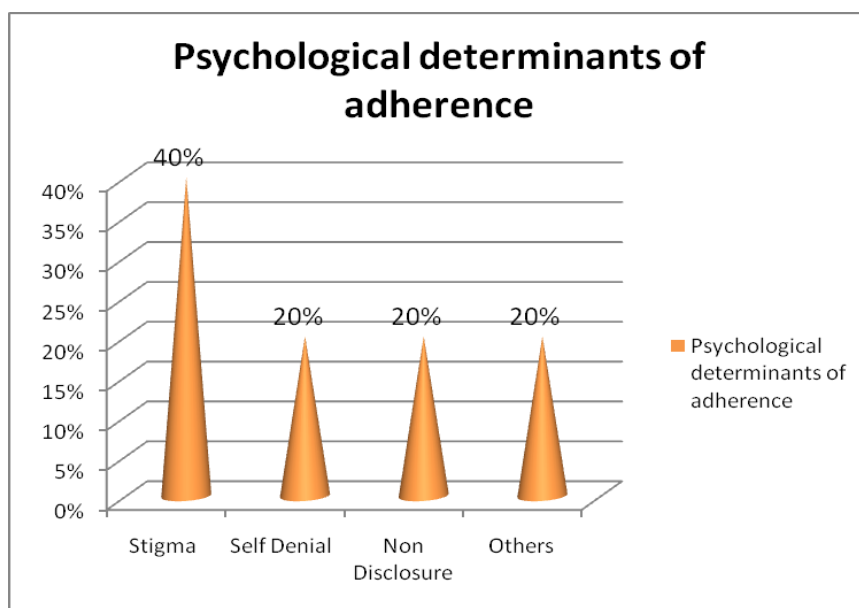


Figure 2: Psychological determinants of Adherence as reported by focus group

Each of the psychological determinants influenced adherence among women living with HIV/AIDS. The level of influence varies from one determinant to another. Findings of how the factors influence adherence as presented herein in Table 2.

Asked whether they were scared of the side effects, most (60.0%) were scared quite a bit, while 9(30.0%) said they were extremely scared. Half (50%) of the women reported that they felt nervousness quite a bit as 40% said they extremely felt nervousness. Majority (80%) of the women feel anxiety, with 53.3% feeling depressed quite a bit, as 60% felt extremely lonely. Patients develop assertiveness due to the depressive symptoms, a view that is in line with [26,27,28] concur that such patients harbour feelings of hopelensess.

A vast majority (60%) of women living with HIV/AIDS felt like ending their lives as 46.7% had extremely lost interest with 60% of the women having extreme fear. It was found out from 50% of the respondents that they

felt hopelessness and spells of terror respectively. This state of mind and body condition influenced the levels of adherence among the women.

Table 2: Psychological determinants that influence adherence

	Not at all	A little bit	Moderately	Quite a bit	Extremely	Others
Scared effects	0	0	0	60	30	10
Nervousness	0	0	0	50	40	10
Anxiety	6.7	6.7	3.3	3.3	80	0
Depression	6.7	13.3	0	23.3	53.3	3.3
Loneliness	3.3	3.3	10	20	60	3.3
Thought of ending life	0	3.3	20	6.7	60	10
Lack of interest	0	0	16.7	26.7	46.7	10
Feeling of fearfulness	0	0	13.3	20	60	6.7
Feeling of hopelessness	0	0	13.3	33.3	50.0	3.3
Spells of terror	0	0	6.7	40	50	3.3

Table 3: Influence of Psychological determinants on adherence

	Not very sure	Not sure	Somewhat sure	Sure	Very sure
Psychological factors influence adherence	0	0	51.7	37.9	10.3
It's a challenge knowing your status	6.7	13.3	20	53.3	6.7
Sure of taking right amounts of drugs at right time	0	6.7	40	46.7	6.7
Take right amounts of drugs at right even when tempted not to	6.7	0	26.7	63.3	3.3
Sure of taking right medication at right time	3.3	3.3	16.7	76.7	0

The study found out that most of the women living with HIV/AIDS were not very sure if the psychological factors influence adherence levels. On the other hand 53.3% reported that they were sure that knowing their status was a challenge. It was the opinion of 46.7% of the women that they were sure of taking the right amounts

of drugs, with 63.3% reporting that they took the right amounts of drugs and at the right time as indicated by 76.7% of the respondents.

Findings from the interviews indicated that most (78.6%) of the patients have no problems with taking their medication. However, 21.4% of the patients have trouble with taking medications. The women group leaders also indicated that the patients did not miss their medication in the last three days. However, 57.1% reported that they got all their doses in the last one month; this view was also held by the health care givers.

3.4.2 Social determinants of adherence to ARV use

The respondents were asked if they had ever told anyone about their HIV/AIDS in order to ascertain whether it affected their level of adherence. The findings on the social determinants aimed at identifying the determinants and their influence on adherence. Results of the study involved obtaining information from the women living with HIV/AIDS, women group leaders, health care givers and focus group discussions.

Table 4: Disclosure of Status by the women living with HIV/AIDS

Individual	n	%
Immediate family member	14	46.7
Other relative	1	3.3
Friend	5	16.7
Church leader	1	3.3
Community leader	1	3.3
All	7	23.3
Others	1	3.3
Total	30	100.0

Except for 3.3% all the rest (96.7%) of the women reported having told at least someone else about their HIV/AIDS status. The focus group discussion members also agreed that there were social determinants of adherence as reported by 80% of the groups. This prompted the next question who they told about their HIV/AIDS.

It was found out from 46.7% women that they had told their immediate family members, 16.7% said they had told a friend, with 23.3% reporting that they had told at least every one including friends, church leaders, community leaders and other members of the family. A few (3.3%) individuals had told their church leaders, community leaders and other relatives respectively. The disclosure of the status is impetus to the patients to continue taking their medications. As [29], points out the patient's social environment and their interactions influence adherence levels are likely to change too with poor social relationships and activities leading to reduced levels of adherence. [18] agrees that decreased compliance can be attributed to the perceptions that the people around the patient have about his or her status.

Table 5: Social Determinants of Adherence

	Never	Rarely	sometimes	Often	Always	Others	Total
Gossips and talk	0		23.3	36.7	36.7	3.3	100.0
Confrontations or verbal insults			33.3	13.3	30.0	23.3	100.0
Names by peers			16.7	10.0	13.3	60.0	100.0
Eviction from work place			36.7	16.7	30.0	16.7	100.0
Isolation by friends		3.3	23.3	33.3	26.7	13.3	100.0
Lost job due to status	40	10	10.0	13.3	13.3	13.3	100.0

According to 36.7% of the women gossips and talks about their status by those around them contributes to low levels of adherence. Being called names by peers (60%) also greatly influences the level of adherence. Loss of job has a minimal level of influence on the adherence. Isolation by friends as pointed by 26.7% of the women always leads to low levels of adherence. Verbal confrontations as reported by 23.3% of the women always make it hard for the patients' continuous use of the ARV's. These findings are in line with [15] report that negative public opinions and beliefs associated with people living with HIV may cause family and friends to distance themselves from the patient and withhold support. It is therefore important for patients to be realistic about who may offer them support [1].

3.4.3 Need to take drugs and at the right time

The women were asked if there was need for them to take their medication and the findings recorded. It was found out that 76.7% of the women strongly agreed that that they did not need to take their drugs. On the contrary 56.7% strongly disagreed that they needed not to take drugs when feeling okay as opposed to the 23.3% who strongly agreed that there was no need to take medication when feeling okay.

3.4.4 Perceptions about Stigma directed towards patients with HIV/AIDS

According to the focus group discussion, the perception is that HIV/AIDS is for people who are immoral and sexually addicted as reported by 80% of the groups, with 20% feeling that people have not fully accepted their status and reality of HIV/AIDS. The focussed group discussion indicated that stigma leads to 60% non adherence and development of immoral behaviour among some patients. As Stigma, [30], posit that on top of the general knowledge of the population about HIV/AIDS and ART treatment, is an important determinant of adherence in the settings of sub-Saharan countries according to studies conducted recently.

3.4.5 Effect of discrimination on Adherence

The researcher sought to find out whether women living with HIV/AIDS are subjected to Stigma and discrimination. All the women leaders and health care givers reported that the women were subjected to stigma and discrimination. It was further noted that stigma (60%) was the greatest challenge faced by the women living with HIV/AIDS among other challenges like pressure from family (14.3%), 7.1% said forgetfulness, failure to disclose status, and side effects of the drugs respectively were challenges experienced by the women.

Based on the finding the study further sought to find out the effect of stigma and discrimination on adherence. Results of the findings are presented in Figure 3.

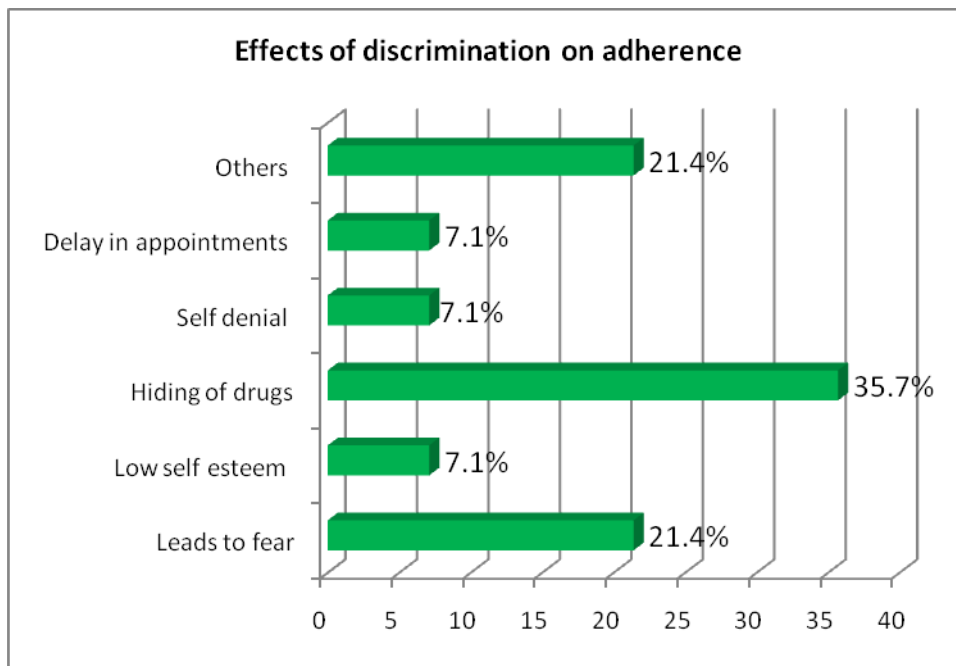


Figure 3: Effects of discrimination on Adherence

Many of the patients fear of discrimination makes them not to adhere to the use of the ARV's as reported by 21.4% of the women. Another 35.7% of the women felt that patients hide the drugs for fear of being discriminated against. The other effects of discrimination were low esteem, self denial and delay in seeking appointments with the health care givers as reported by 7.1% respectively of the respondents. This was in line with the focus group discussion finding that stigma, self denial and non disclosure leads to fear (40%), and non adherence (40%).

3.5 Health care givers influence on adherence to the use Antiretroviral medication

The health care givers perform an important role in ensuring that the patients adhere to the ARV medication. The study sought to find out the level of influence of the health care providers on the adherence among women living with HIV/AIDS. To this end the study findings are presented in Table 6.

Table 6: Service providers and adherence to the use antiretroviral medication

Attributes of health care givers	Strongly disagree	Disagree	Don't know	Agree	Strongly agree	Total
Spend adequate time with patients	20.0	20.0	33.3	13.3	13	100.0
Patients have trust in them	20.0	20.0	23.3	16.7	20.0	100.0
Give adequate information	6.7	13.3	43.3	3.3	33.3	100.0
Patients incur a lot of cost	40.0	13.3	23.3	6.7	16.7	100
Fees paid is too high	50.0	10.0	6.7	10.0	23.3	100

Most of the women were in agreement that the health care givers do not spend adequate time with the women as reported by 40.0% of whom 20% disagreed that they spend adequate time with them. A majority of the women were not sure of the time spend with the health care givers was adequate. An equal number of 50% interviewees said that the health workers are able to spend time with the patients, contrary to the view held by the other 50%. A slightly high number (40.0%) of the women disagreed that the health care givers were trusted, with 20% strongly agreeing that they trusted the health care givers.

The health care givers were also found to provide adequate information to the women living with HIV/AIDS as reported by 33.3%, most of the women didn't know whether the information provided by the health care givers was adequate.

Since, the expenses involved in transportation to the healthcare centres during visits, was thought to be determinant to adherence. The women strongly disagreed that the cost was high. This was an indication distance from the health care centres and costs involved were not really a limiting factor.

Findings of the interview schedule with health workers and women group leaders indicated that distance to the health facilities was a cause of non adherence among some women as reported by 28.6% interviewees. A similar number of 28.6% pointed out that forgetfulness was a major contributor to non adherence.

The focus group discussion pointed out that the costs of transport to the health facilities were prohibitive and that they had a challenge with the time spend at the health care facilities as said by 80% of them.

The women living with HIV/AIDS said that the fees paid to the health care givers is not too high as reported by half (50.0%), with only 23.3% reporting that the fees was too high thus a major hindrance to their access to the ARV's.

The finding justifies the views by [31] that financial trouble prevent caregivers of children or adult patients from collecting medication on time, distance barrier or lack of transportation facilities to the ART clinic, vomiting of

medication without redosing, incorrect dosing by a caregiver, missed clinic appointments and pharmacy collections, confusion between multiple caregivers, and self-discontinuation or refusal by children [31].

The women living with HIV/AIDS were all in agreement that the service providers had done enough for them in helping them deal with HIV/AIDS. This view was supported by the group discussions that the patients received medication promptly from the health care givers. This was with respect to taking the medicine, going for check ups and following the advice. This finding may have been due to the fact that the women in the group had already accepted their status despite the challenges.

Most (73.3%) women noted that the health care givers had helped them accept their status, with 20% saying that they also provide guidance and counseling during the visits. A few 3.3% women reported that the health care givers help them in raising the children. This is a positive attribute of the health care givers by the women that helps them to adhere to the medication regimens. All women were not however able to give reasons as why they thought the health care givers had not done enough to assist them. Half (50%) of the health care workers were of the opinion that those patients who receive social support have a higher adherence levels compared with those who do not have support. The ones with support have a high self esteem (28%) and level of adherence (50%). In a review of studies on adherence, Reisner et al (2005) found no significant relationship between social support and adherence thus the view by 50% of the population that social support does not influence adherence.

Most (53.3%) women strongly agreed that getting all the meals in a day is a problem, with 23.3% of the women agreeing that getting all the meals is a problem. A view that was rejected by 6.7% who agreed that obtaining the days meals was not a problem. A larger number of the women felt that getting all the meals of the day was a problem. This can be attributed to the lack of adherence to the use of the ARV's.

A majority (57.1%) of the women group leaders and the health care givers reported that the patients should be encouraged to take their medication after meals. On the contrary, 21.4% felt they should take medicine after meals. The study indicates that there is need for a good relationship between the patients and the health care givers in order to enhance the adherence levels. [24] and [32] concur with the believe that adherence can be achieved if the therapeutic relationship is based on exploring alternative therapeutic means; if the regimen is negotiated; if adherence is explored and follow-up is planned. [32] lists the quality of the patient/provider relationship and support from family and friends as predictors of adherence.

3.6 Interventions that may enhance adherence to ARV medication

The researcher set out to find out from the women, women group leaders and the health care givers the possible interventions that can be used to overcome the challenge. It was the opinion of 63.3% of the women that the number of drugs and number of times they take the medication be reduced once per day. The health care givers agreed that the amount of medicine and number of times should be reduced as reported by 21.4%, as 14.3% emphasized on proper guidance and counseling as a way forward. Alternatively the women felt that the drugs should be replaced with an injection once in year. Due to the negative effects of the drugs and challenges faced, the victims must be empowered in order to deal with the condition well. According to 50% of the health care

givers and women group leaders there is need for creation of awareness among the women. This view was fully supported by all the discussion groups who were of the opinion that proper education on the need for adherence was necessary among women living with HIV/AIDS.

The health care givers and women group leaders when interviewed were in agreement with the women that proper guidance must be given to the women. According to the study findings from the health care givers, varying numbers of patients had their CD4 count done. An equal number of 7.1% said 25, 76-100 and 110-120 years. It was the opinion of 35.7% of the women that many patients had their CD4 Count done. It's important that the CD4 count is determined in order to understand the adherence levels and know the right types of drugs to be taken. In terms of health facilities with laboratories for testing the CD4, 64.2% said yes, with 35.7% saying no, since no laboratories are available to test CD4 count of the patients.

4. Summary of the Findings

A summary of the study findings on the psychosocial determinants of adherence are presented based on the four main objectives of the study. However, the study found out that most (83.3%) women living with HIV/AIDS are young females aged 25-45 years of age. Most of the women living with HIV/AIDS are those with primary education with a few (6.7%) having attained tertiary education. majority of the women are married, with 33.3% reporting that they are divorced. This can be attributed to social factors that include rejection and seclusion due to the knowledge of their status. Only 16.7% were formal employment, with majority being unemployed but active members of support groups.

4.1 Level of Adherence to ARV medication among women living with HIV/AIDS

The study found out from the focus group discussions that it is not possible to achieve the 95% level of adherence among patients with HIV/AIDS. The health care givers and women group leaders. Reports the women living with HIV/AIDS indicated that they had 88.9% level of adherence, the healthcare givers rated adherence levels at 57.1%, however all the focus group discussion members concurred that the women were unable to adhere to the ARV regimens. The average level of adherence is as calculated from the study is 48.7%. This is far below the internationally accepted level of adherence of 95%. The main reasons for non adherence were cited as poor timing (60%), alcoholism (20%), and negative effects of drugs (35.7%), with 28.6% blaming the non adherence on forgetfulness.

4.2 Psychosocial determinants of Adherence

The women, health care givers and the focus group discussions all pointed out that there are numerous psychological factors that contribute to non adherence. Psychological factors have an influence on adherence as reported by 89.6%. Majority (85.7%) of the health workers interviewed and the women group leaders totally agreed that the psychological factors had influence on the levels of adherence. The main psychological factors that influence adherence are stigma (40%), self denial (20%) and non disclosure (20%). Majority (80%) of the women feel anxiety, with 53.3% feeling depression quite a bit, as 60% felt extremely lonely. This is believed to

contribute to the low levels of adherence. The study also found out from 76.7% women that they needed not to take their drugs.

The study found out that 96.7% of the women had told at least one individual about their HIV/AIDS status. A majority of who had told their immediate family member. The focus group members (80%) perceived HIV/AIDS as a condition for people who are sexually addicted and immoral. It was found out that stigma leads to 60% non adherence and development of immoral behaviour among some patients. Stigma is believed to be the greatest challenge. Discrimination and stigma are the main social components that hinder adherence to the use of ARV's among the youth.

4.3 Service providers and Adherence to the use antiretroviral medication

Most (40.0%) women were in agreement that the health care givers do not spend adequate time with them. The women living with HIV/AIDS said that the fees paid to the health care givers is not too high as reported by half (50.0%). The women living with HIV/AIDS were all in agreement that the service providers had done enough for them in helping them deal with HIV/AIDS.

Most (73.3%) women noted that health care givers helped them accept their status. Half (50%) of the health care workers were of the opinion that those patients who receive social support have a higher adherence levels compared with those who do not have support. The ones with support have a high self esteem (28%) and level of adherence (50%).

Most (53.3%) women strongly agreed that getting all the meals in a day is a problem, with 23.3% of the women agreeing that getting all the meals is a problem.

A majority (57.1%) of the women group leaders and the health care givers reported that the patients should be encouraged to take their medication after meals.

4.4 Interventions for enhancing Adherence levels

The study finding from 63.3% women living with HIV/AIDS, they felt that the medicines given to the patients should be reduced. Half (50%) of the health care givers and women group leaders felt there is need for creation of awareness among women living with HIV/AIDS. At least 35.7% of the women reported that their CD4 count, with 64.2% saying that the health facilities had adequate and reliable machines for testing. Proper guidance and counseling coupled with creation of awareness among the women is critical towards enhancing adherence to ARV medication.

4.5 Conclusions of the Study

Based on the study findings, the level of adherence among women living with HIV/AIDS, the adherence levels are still far below the international standards.

There are numerous psychological determinants of adherence to ARV medication including the depression, anxiety and side effects and supportive environment.

Stigma and discrimination are the leading factors that influence adherence to the use of the medications.

The study indicated that it's the desire of the patients that are receiving medication is for the number of drugs and times the drugs are taken. Of great significance is the creation of awareness as reported by the healthcare givers, women group leaders and report of the women who participated in the study. The psychosocial determinants directly influence the levels of adherence.

4.6 Recommendations of the Study

The study recommendations are presented in two main sections. The first section is for the policy recommendations and the other section for suggestions for further research on the psychological determinants and their influence on the levels of adherence.

4.7 Policy Recommendations

Based on the findings on various themes, the study recommends that the government takes bold steps of continuously exposing the problems associated with HIV/AIDS through increased levels of awareness.

The government should also allocate more resources towards the health of her people, in order to ensure that the number of those on medication continue use of the resources.

4.8 Suggestions for further Research

The study suggests that,

1. A national survey is carried out to establish the impact of Non Governmental organizations in enhancing use of ARV's among people living with HIV/AIDS.
2. A study should be carried out to determine the influence of the government policy on the adherence towards the ARV medication.
3. A study to be carried out on the effects of non adherence to the use of ARV's among people living with HIV/AIDS.
4. Further research should also be carried out to determine the effects of socio economic factors on the level adherence in Kenya.
5. A comparative study to be carried out to determine the regional disparities in adherence to ARV's in Uganda and Kenya.

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