

# Factors that Contribute to Non-Adherence to Antiretroviral Therapy among HIV and AIDS Patients in Central Province, Kenya

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### Abstract

Adherence concerns have been one reason expressed by opponents of antiretroviral therapy in developing countries or resource poor settings. The objective of the study was to determine factors contributing to non-adherence to Anti-retroviral therapy among HIV and AIDS patients. This was a Cross sectional, descriptive study carried out in Provincial General Hospital Nyeri, Karatina and Thika District Hospitals. The participants included 300 interviewees, 15 Key Informant Interviews (KIIs) and 3 Focus Group Discussions (FGDs) with 8 members each. In regards to the results, the Odds ratio was used to test for association between variables and level of significance. Results also showed that the prevalence of adherence to ART was 74%. Risk factors associated with non-adherence were: age ( $p < 0.039$  OR=1.287 95% CI 1.013-1.634), occupation ( $p < 0.0001$  OR=1.675 95% CI 1.449-1.937), food ( $p < 0.002$  OR=0.419 95% CI 0.242-0.726), level of education ( $p < 0.023$  OR=0.593 95% CI 0.378-0.930), and stigma ( $p < 0.002$  OR=2.456 95% CI 1.375-4.389). 23% of those who lacked community support were found to be suffering from stigma and did not adhere to Antiretroviral Therapy (ART). Through the FGDs the study revealed that co-treatment of HIV and other diseases like tuberculosis, diabetes, epilepsy and mental illness remains a major challenge. 66% of Key Informants reported paediatric ARV drugs formulations were inappropriate, unpalatable and inadequate, dependence on care givers and the laboratories were ill-equipped in terms of facilities, reagents and personnel. In conclusion, the level of adherence (74%) was sub optimal (less than 95% which is the acceptable) but comparable to that of other developing countries. Taking ARV drugs without eating any food made patients suffer from side effects thus making them avoid the medication. Stigma, discrimination, lack of family and community support were huge obstacles to ART adherence. Co-treatment of HIV and other infections remain a major challenge. Shortage of appropriate paediatric formulations, unpalatability of some ARV drugs and dependence on care givers contributed to pediatric ART non-adherence. Health facilities with functioning laboratory, adequate personnel and stock of ARV drugs enhanced ART adherence.

**Key words:** *Non-adherence, Antiretroviral Therapy, HIV and AIDS, Central Province, Kenya.*



## Introduction

Anti-retroviral therapy (ART) is increasingly available in Kenya. Adherence concerns have been one reason expressed by opponents of antiretroviral therapy in developing countries or resource poor settings (Stevens, *et al* 2004; Gill, *et al* 2005). In Kenya, the national HIV estimates for the year 2006 were: males HIV+ 320,000, females 614,000; people HIV+ in urban areas 400,000, in rural areas 534,000, adults 50 and above 55,000 and children 0-14 years old 102,000 (NACC Kenya, 2007). These figures illustrated the magnitude of the task to provide prevention, care and treatment, and support services for all who needed them.

In Kenya ART has been delivered free of charge since early 2001, but the user bears the cost of medical support services and transport. These additional costs are often inseparable financial burden, which cause patients to default on their treatment. Levels of adherence below 95% have been associated with poor virological and immunological response (Paterson, *et al.*, 2000; Orell, 2003). To achieve effective treatment and realize the benefits of treatment, strict adherence to treatment instructions are very critical. Sticking to the treatment instructions for a long-term illness poses a great challenge to the patients (WHO, 2004). ART lowers viral load only when treatment regimen is fully adhered to.

The many methods employed by different studies include: pill counting, electronic drug monitoring (EDM), pharmacy refill records, biochemical markers and other self reporting techniques such as visual analogue and recall method. A significant proportion of all hospital admissions are due to drug non-adherence. Therefore, there was need

for a study to identify factors that influence ART non-adherence and come up with strategies to maximize long-term ART adherence to ensure success as Kenya scales up ART programmes countrywide.

## Materials and Methods

This was a cross-sectional descriptive study whose study population comprised of 300 AIDS patients on ART attending the Provincial General Hospital Nyeri, Karatina and Thika District Hospitals respectively. The study used systematic random sampling to select the interviewees. It focused mainly on those who had AIDS and had been put on ARVs. Primary data were collected from respondents through personal interviews using structured interview guide. Additional qualitative data were obtained through use of three Focus Group Discussions (FGDs) each involving eight patients on ART enrolled at the selected study sites. In addition, Key Informant Interview (KII) was conducted among health care providers in Comprehensive Care Clinics. The study purposively selected five KI per each of the three study areas. Variables collected included socio-demographic, -economic, and -cultural factors; treatment regimen, co-treatment of HIV and other infections, clinical setting and service delivery.

Two methods used for collecting adherence data were: Two-day self report recall and one-month self report recall (10cm long visual analogue scale). This was in line with the method used by Kgatlwane *et al.* (2005). The two-day self report recall involved asking patients how they took their medicines two days prior to the interview. The one-month self report recall (10 cm long visual analogue scale) involved asking the respondents to indicate their adherence rate over

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the past one month using a 10 cm long visual analogue scale. The patient's mark on the scale was measured and then translated into percentages. The optimal adherence rate was calculated by summing up and averaging all the optimal adherence rates from the three study areas. Data was sorted, coded, entered and analyzed by use of SPSS computer software version 11.50. Odds ratio was used to test for association between variables and level of significance. Qualitative data was analyzed thematically through content analysis. Data was presented in descriptive and inferential methods.

### Results

Most of the respondents, 73.7% were females. The respondents' age ranged from 10 to 60 and above years with a majority falling between the age group 30-39 years. Most of the respondents were within the reproductive age group of 15-49 years as shown in Figure 1 below.

The mean optimal adherence rate as shown in Table 1 was 74 % (222) indicating that majority of study participants adhered to ART. Among the 26 % (78) who did not adhere to ART, 15 were children whose elderly grand parents/guardians taking care of them were interviewed.

As mentioned earlier, most of the respondents 73.7% were females. FGD found that they were able to adhere more than males. The age of the respondent was significantly associated with non-adherence to ART ( $p < 0.039$  OR=1.287 95% CI 1.013-1.634). The trend was that ART adherence increased as age increased and started decreasing as age advanced beyond 39 years. Respondents (70%) who were employed adhered to ART ( $p < 0.0001$  OR=1.675 95% CI 1.449-1.937). Those not employed mentioned lack of transport to the clinic as a reason for them not to adhere to ART. Respondents (71%) who could afford three meals in a day adhered to ART ( $p < 0.002$  OR=0.419 95% CI 0.242-

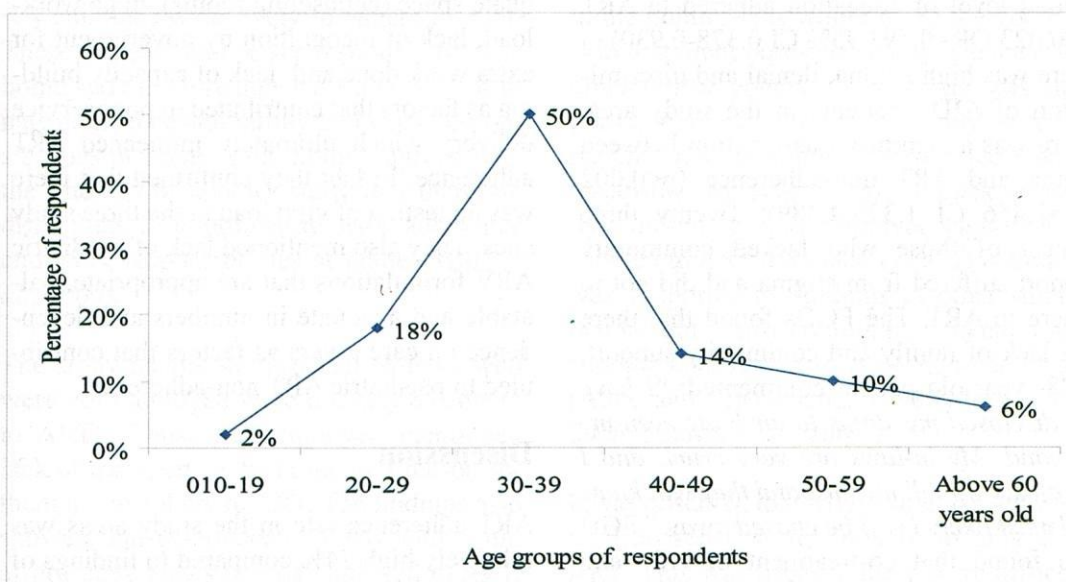


Figure 1: Distribution of the respondents according to age



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**Table 1: Distribution of Adherence Rate at PGH Nyeri, Karatina and Thika District Hospitals**

Finding	PGH Nyeri n=100	Karatina D. Hosp. n=100	Thika D. Hosp. n=100	Total % n=300	95% CI
Visual Line Adherence	53 (53%)	51 (51%)	53 (53%)	157 (52%)	47.74 - 56.26
Non-Adherence	47 (47%)	49 (49%)	47 (47%)	143 (48%)	43.70 - 52.30
Two-day Adherence	96 (96%)	95 (95%)	97 ((97%)	288 (96%)	94.05 - 97.95
Non-Adherence	4 (4%)	5 (5%)	3 (3%)	12 (4%)	2.04 - 5.96
Average Adherence	74.5%	73.5%	75%	74%	73.04 - 75.96
Non-Adherence	25.5%	26.5%	25%	26%	24.00 - 28.00

0.726). FGD evidenced this observation. A 36 year old female patient said: *“Once I take this medicine, I feel dizzy, therefore when I have not taken any meal I can hardly take this medicine”*. Seventy eight percent of respondents who had attained secondary and beyond level of education adhered to ART ( $p < 0.023$  OR=0.593 95% CI 0.378-0.930). There was high stigma, denial and discrimination of AIDS patients in the study area. There was a significant association between stigma and ART non-adherence ( $p < 0.002$  OR=2.456 CI 1.375-4.389). Twenty three percent of those who lacked community support suffered from stigma and did not to adhere to ART. The FGDs found that there was lack of family and community support. A 28- year old patient commented: *“I have not disclosed my status to anybody even my husband. My in-laws are very cruel, and I am afraid if I tell my husband they will know and most likely I will be chased away.”* FGD also found that co-treatment of HIV and other diseases like tuberculosis, diabetes, epilepsy and mental illness remains a major

challenge. Fifty percent of respondents who were undergoing co-treatment of both HIV and TB did not adhere to ART.

Sixty six percent of Key Informants mentioned lack of functioning laboratory, inadequate space (counseling rooms), huge workload, lack of recognition by government for extra work done and lack of capacity building as factors that contributed to poor service delivery which ultimately influenced ART adherence. In fact they confirmed that there was no testing of viral load in the three study sites. They also mentioned lack of paediatric ARV formulations that are appropriate, palatable and adequate in numbers and dependence on care givers as factors that contributed to paediatric ART non-adherence.

## Discussion

ART adherence rate in the study areas was relatively high 74% compared to findings of a study in developed countries on AIDS patients among whom ART adherence was 55



% (Millis, *et al.*, 2006). However, this adherence rate (74%) was less than that found by Sarna *et al.*, (2005) in Mombasa Kenya, which was greater than 95%. The finding by Sarna *et al.* (2005) was for patients on ART who were under Directly Administered Antiretroviral Therapy (DAART) program in Mombasa. However, DAART program was not in use at PGH Nyeri, Karatina and Thika District Hospitals.

The study findings showed that females were more likely to adhere to ART than males. Females could wait for long hours during appointments than males, who said they were very busy and left early in case of any delay thus missing the appointment. This finding agrees with the findings of other studies that gender contributes to ART non-adherence (Abah, *et al.*, 2004). Adherence to ART in this study was high among respondents in the age bracket 30-39 years where 81% of them adhered to ART. This finding agrees with the finding of other studies that age contributes to ART non-adherence (Jones *et al.*, 1999; Abah *et al.*, 2004). It was observed that respondents from small families (with < 4 children) were likely to adhere to ART. These patients had fewer responsibilities at home and therefore they were able to coordinate adherence and family and work responsibilities at home. This finding agrees with the findings of another study that there are difficulties in coordinating ART adherence and work responsibilities at home (Mills *et al.*, 2006).

The study results showed that patients who were not employed were unlikely to adhere to ART. Those not employed mentioned lack of transport to the clinic as a reason for them not to adhere to ART. The findings also showed that respondents (71%) who could afford three meals in a day adhered to ART. The patients were able to tolerate the undesirable drug side effect while those who took

the medicine without eating any food suffered from undesirable drug side effects like dizziness. This made them to skip treatment doses. This finding agrees with the findings of another study that revealed that lack of food made AIDS patients on ART to skip treatment doses (Chishimba and Zulu, 2004). It was observed that seventy eight percent of respondents who had attained secondary and beyond level of education adhered to ART. Educated respondents could easily understand ART instructions compared to those without formal education. Health literacy enables the patient to attach more value to treatment instructions thus improving their ability to follow ART as expected. These findings agrees with the findings of study by Wolf and Cecilia (2001); Abah *et al.* (2004); Stone (2004) and Nakiyemba, *et al.* (2005) that high level of education enhances ART adherence.

The study findings also showed that patients who suffered from stigma especially the youth did not adhere to ART. The indicators of stigma were factors such as fear of disclosure of one's HIV status and avoiding taking ARV in the public. This would make the youth to skip treatment doses especially when among other fellow youths. This finding was supported by findings of another study on AIDS patients among whom 67% reported fear of disclosure (Mills *et al.*, 2006). Lack of family, community and employer support contributed to ART non-adherence. This finding was supported by findings of other studies that lack of family community and employer support contributed to ART non-adherence (Alice and Friend land, 1998; Mills *et al.*, 2006; Sharon *et al.*, 2006).

It was observed that AIDS patients who were on Efavirenze were unlikely to adhere to ART. This was because there were difficulties when swallowing and side effects such as feeling drowsy. This finding agrees with



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the findings of another study that difficulties when swallowing Efavirenze pills and its side effects such as feeling drowsy made AIDS patients skip treatment doses (Byakika *et al.*, 2005). The findings also showed that co-management of HIV and other diseases like tuberculosis, diabetes, epilepsy and mental illness remains a major challenge. Patients who were undergoing treatment of TB and AIDS simultaneously could take pills for TB and forgot the ARV pills. Others could deliberately avoid ARV pills after taking TB pills due to the feeling that the pill burden is too much.

The study findings showed that congestion and long waiting time at the pharmacy contributed to ART non-adherence. Study participants said that there was no privacy at the pharmacy waiting bay. Others felt that they waited for so long and opted to leave and come for medicine another day but by then they had already defaulted. The study findings also showed that poor clinical setting and service delivery strongly contributed to ART non-adherence. Key informants (Doctors, Clinical Officers, Pharmacist and Nurses) said that shortage of appropriate paediatric formulations, unpalatability of some ARV drugs and dependence on caregivers are major challenges of paediatric ART adherence. Each of the three Public Health facilities in the study areas had a laboratory that was ill equipped; had inadequate personnel and did not fully observe privacy during consultation due to lack of enough rooms thus contributing to ART non-adherence. Lack of testing for viral load and only relying on CD4 counts can be erroneous because CD4 count can go down due to other infections and not necessarily due to AIDS.

### Conclusions

Level of adherence (74%) was sub optimal (less than 95% which is the acceptable)

but comparable to that of other developing countries. Taking ARV drugs without eating any food made patients suffer from side effects thus making them avoid the medication. Stigma, discrimination, lack of family and community support are huge obstacles to ART adherence. Co-treatment of HIV and other infections remains a major challenge. Shortage of appropriate paediatric formulations and unpalatability of some ARV drugs and dependence on care givers contributes to pediatric ART non-adherence. Health facilities with functioning laboratory, adequate personnel and stock of ARV drugs enhanced ART adherence.

### Recommendations

To enhance ART adherence the study recommends to the Ministry of Health and other stake holders to: Develop strategies to ensure food security in households with people living with HIV and AIDS; intensify health education campaigns against stigma and promote family and community support for people living with HIV and AIDS; develop adequate and appropriate paediatric ARV drugs formulations that are palatable. ensure that all public health facilities have a well equipped functioning laboratory, and adequate personnel. A study on co-treatment of AIDS and other infections is very crucial.

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