

## **Levels of Utilization and Socio - Economic Factors Influencing Adherence to Utilization of Antiretroviral Therapy to People Living With HIV/AIDS: A Case Study of Dodoma Municipal and Kongwa District – Tanzania**

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**Abstract:** The paper intends to assess the level of utilization and socio-economic factors influencing adherence to utilization of Anti Retroviral Therapy (ART) for People Living with HIV/AIDS in Dodoma Municipality and Kongwa District in Tanzania. Documentary review, interview and Focus Group Discussion were used in collecting data. A total of 140 respondents (99 PLWHIV/AIDS and 41 key informants) from four hospitals, two health centers and one dispensary were selected and interviewed as representatives for the purpose of this study. Quantitative data were collected and analyzed by using SPSS version 16 software. The study revealed 100% of PLWHIV/AIDS used ART drugs in Dodoma General Hospital, Kongwa Hospital, Mkoka Health Center and Makole Health Center while 40% in St. Gemma Hospital. Also the study indicated there were high dropout from utilization of ART drugs among PLWHIV/AIDS, 60% in Mirembe hospital, (50%) in Mkoka health center and (44%) in St. Gemma hospital as compared to the rest health centers and hospitals. The drop out caused by ART drugs side effects such as vomiting (25.1%), frequently sickness (19.9%) and decrease in CD 4 (11.2%). Lastly the study revealed four main socio-economic factors influencing adherence to utilization of ART services among PLHIV/AIDS including lack of employment support (66.7 %,) lack of confidentiality (50 %,) patient's preference to traditional medicines (30%) and cultural belief (29.3%). The study recommends all PLWHIV/AIDS with side effects should report their cases to health centers and hospitals because not all side effects require a change of drugs or discontinuation, PLWHIV/AIDS should be assisted by Government and Non-Government Organizations and family members to secure soft loans that will enable them to establish income generation activities, education on patients confidentiality should be provided to services providers in hospitals and health centers.

**Key Words:** HIV/AIDS, People Living with HIV/AIDS, adherence, ART drugs, level of ART drug utilization.

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### **I. Introduction**

HIV/AIDS is a major health problem globally. It is estimated that, more than 35.3 million people are expected to be living with HIV worldwide (Williams, 2014). In 2012, it was estimated that 2.7 million people globally were newly infected, while 2 million people died as a result of AIDS-related illnesses (UNAIDS, 2013). By the end of 2011, an estimated 2.1 million adolescents were living with HIV. Close to 90 per cent (1.8 – 2.1 million) were in sub-Saharan Africa (UNICEF, 2012).

Adherence is defined as the extent to which patients take medications as pre-scribed by their health care providers (Osterberg and Blaschke, 2005). Establishing and maintaining adherence to medication is a difficult goal for an individual with chronic illness even when treatment regime is simple and the patient is clearly symptomatic. Many studies have documented the relationship between adherence to ART and virologic, immunologic and clinical outcomes, including progression to AIDS, occurrence of opportunistic infections and survival, with 95% adherence identified as the 'gold standard' (Garcia de Olalla *et al.*, 2002). Several studies in the US and Europe reveal that only a minority (20-40%) of patients are able to achieve such high adherence levels (Bastos *et al.*; 2007). There have been many studies examining factors associated with adherence to ART in the US and European countries where treatment has been available since the mid-1990s. Generally, these factors can be categorized into: (1) individual factors, such as substance use, age, attitudes towards treatment and psychological characteristics, (2) medication characteristics, such as dosing complexity, and number of pills or food requirements, (3) interpersonal characteristics, such as the doctor-patient relationship and other social supports and (4) the general system within which care is administered (Remien, 1998).

Services provided at Care and Treatment Centre (CTC) include providing antiretroviral therapy to eligible patients, counseling on adherence to ARV, treatment of opportunistic infection, nutrition counseling and growth as well as monitoring and evaluation. Antiretroviral Therapy suppresses viral load and raises the number of CD4 cell thus improving quality of life of HIV infected patients. ART is lifelong therapy and requires stringent adherence to treatment (El-Sadr, 2013). There is little evidence as to why some ARV users do not achieve optimal adherence rates or about how to improve adherence support in resource poor settings. Reports on sub optimal adherence to ART in developed countries indicate that the key factors are patient and treatment related, including substance and alcohol abuse, complexity of dosing regimen and 'pill burden', dietary restrictions and side effects. Bangsberg *et al*; (2003) in their study in Botswana identified financial constraints as the major obstacle to adherence. Other reasons for defaulting from treatment programmes have been hypothesized. These include cost, transport and waiting time, stigma, family pressures, religious beliefs and illness (Roura, 2009).

Despite that ART adherence is considered as key factor for retention of patients in care, yet there is varied opinions on the socio – economic factors that lead to non-adherence therefore there is a need of studying specific study area socio-economic factors affecting the adherence of ARV to PLWHIV/AIDS. This study focused more on analyzing specific study area socio – economic factors that influence PLHIV/AIDS adherence to ART.

## **II. Methodology**

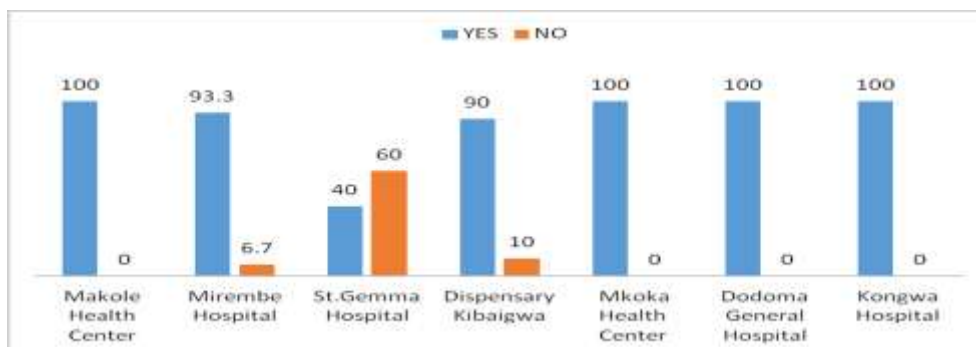
The study was conducted in Dodoma Municipality and Kongwa District. The study focused on four hospitals, two health centers and one dispensary while involved a total of 140 respondents (99 PLWHIV/AIDS and 41 key informants). The reason for selection of the study areas was based on HIV prevalence rate in the region; Kongwa with 2.2% being the lowest and Dodoma Municipality with 3.2% being the highest rate in the region. Kongwa District and Dodoma Municipality have also been selected for this study because of the desire to make comparative study among rural setting and urban settings. Simple random sampling procedures were used to select People Living With HIV/AIDS (PLWHIV/AIDS) in selected health centers, hospitals and dispensary. Purposive sampling was used in selecting key informants including medical officers, clinical officers and counselors/ART nurses. The key informants were selected on the basis of either services or role they play in administering ART services to PLWHIV/AIDS. Data were analysed through descriptive statistics and the results obtained afterwards were entered into the statistical package for social science (SPSS) version 16 for further analysis.

## **III. Results And Discussion**

### **3.1 Levels of utilization of ART drugs by people living with HIV/AIDS**

#### **3.1.1 Uses of ARV**

Results on the levels of utilization of ART are indicated in Figure 1 the results show that all [100%] respondents from Makole HC, Mkoka HC, Dodoma Referral Hospital and Kongwa hospital use ART while Majority (93.3%) in Mirembe Hospital use ART and Kibaigwa dispensary use ART. This implies that majority of the respondent were aware of their CD4 status and were given consultation on proper time for beginning ART medication. The results are different from that of Mwaluko (2004) in his study on ARVs and Rural Communities which indicated that only 20% of PLWHIV/AIDS were ready to use ARV. This is because currently there is mass campaign on the importance of using ARV to PLHIV/AIDS compared to the year 2004. Results indicate few (60%) of PLWHIV/AIDS at St. Gemma hospital does not use ARV drug while at Kibaigwa were 10%, this is because of inadequate transportation services from town to St. Gemma while the percentage of PLWHIV/AIDS who did not adhered to ARV were small at Kibaigwa as compared to St. Gemma hospital. This implies a Kibaigwa health center is located at the centre urban area while St. Gemma Hospital is located at the periphery where transport services were poor. This situation discouraged patient and they used Dodoma referral hospital as the easiest and reachable alternative.



**Figure 1:** ART usage in % of PLWHIV/AIDS respondents by health facility

### 3.1.2 Type of ARV used by PLHIV/AIDS

The results show that majority (33.4%) utilized ARV type 1C followed by 1B (22.7%) and 1G (18.7%) and few (5.2 %), used the combination of 1A & 1C (Table 1). The causes of the variation in the use of ARV services were caused by the nature of the immune capability of the patients against HIV/AIDS. The results indicate that at St. Gemma the majority (60%) had not started the use of any ARV dose. The cause of ignoring the use of ARV drugs by PLWHIV/AIDS in St. Gemma hospital was attributed by reporting too late to ART services center for checkup and medication. As a result majority of the People Living With HIV/AIDS reported too late to health center at a time HIV/AIDS virus became resistance to the first beginner dose 1A (30).

**Table 1:** Types of ARV taken by PLHIV/AIDS

| Type of ARV | Respondents (%) |           |           |           |           |            |            | Total<br>N=99 |
|-------------|-----------------|-----------|-----------|-----------|-----------|------------|------------|---------------|
|             | A<br>n= 15      | B<br>n=15 | C<br>n=10 | D<br>n=10 | E<br>n=10 | F<br>n= 25 | G<br>n= 15 |               |
| 1C          | 33              | 27        | 40        | 50        | 30        | 21         | 33         | 33.4          |
| Not Yet     | 0               | 7         | 60        | 10        | 0         | 0          | 0          | 11            |
| 1B          | 40              | 33        | 0         | 30        | 20        | 29         | 7          | 22.7          |
| 1G          | 20              | 33        | 0         | 0         | 30        | 21         | 27         | 18.7          |
| 1A (30)     | 7               | 0         | 0         | 0         | 10        | 4          | 0          | 3             |
| 2F          | 0               | 0         | 0         | 10        | 0         | 8          | 13         | 4.4           |
| 1C& 1G      | 0               | 0         | 0         | 0         | 0         | 4          | 7          | 1.6           |
| 1A & 1C     | 0               | 0         | 0         | 0         | 10        | 13         | 13         | 5.2           |

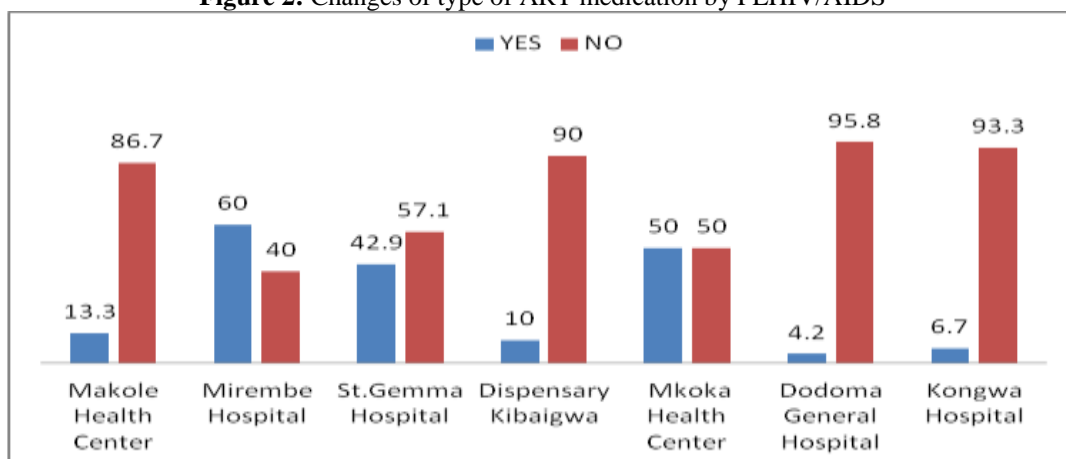
*Key: n= Number of respondents A= Makole Health Center B= Mirembe Hospital C= St. Gemma Hospital D=Kibaigwa Dispensary E = Mkoka Health Center F= Dodoma Referral Hospital G= Kongwa Hospital*

This situation made them to be registered to other type of ARV that would respond well to their dropped CD4 count. This was attributed by good CD4 count among the registered PLHIV/AIDS at the center. This finding implies that the majority utilized the second, third and so on type of ARV medication that depended on the resistance of HIV virus because very few only 3% utilized the beginner dose 1A (30) type of ARV.

### 3.1.3 Changes of ARV medication by PLHIV/AIDS

The results figure 2 show that all (100%) PLWHIV in Kibaigwa, Mkoka health center, Dodoma referral hospital and Kongwa hospital did not change the type of ARV since they started using them. About half (57.1%) in Mirembe hospital and in St. Gemma (42.9%) had changed the type of ARV (Figure 2). The reasons for these changes were mentioned to include side effects and ART drug resistance. This implies there were patients changed their ARV medication type because of the identified reasons earlier but for the case who did not change their ARV medication it implied that they took their appropriate medication that suits to their body immune systems. Mirembe, St. Gemma and Mkoka health centers experienced relatively large number of people who changed the type of ARV they had been using as compared to other hospitals. The causes of this situation were beginning of the dose too late when the virus had become resistance to the body immunity in such a way at the beginning PLHIV/AIDS they were given medication on basis of trial until ART facilitator get the dose that suit virus resistance . Fear of not using ARV medication due to ignorance is among the causes for too late starting of ARV medication.

**Figure 2: Changes of type of ART medication by PLHIV/AIDS**

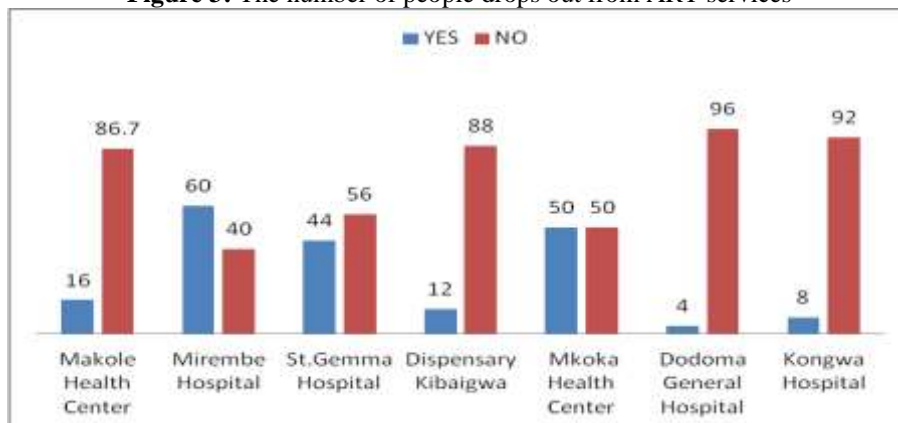


A switch in the antiretroviral regimen is often necessary because of both acute and chronic toxicities, concomitant clinical conditions, and development of virological failure (Angamo et al; 2013). These support this study that (57.1%) in Mirembe hospital and in St. Gemma (42.9%) who changed their antiretroviral regimen was due to either of the above factors as identified by other researchers in Ethiopia.

### 3.1.4 The number of drops out from ART services

The results (Figure 3) show the dropout of PLHIV/AIDS from ART services were high (60%) in Mirembe hospital, (50%) in Mkoka health center and (44%) in St. Gemma than other health centers. This situation might be caused by distance factor of the hospital/health center because each of them was located at the periphery of the centre of Dodoma Municipality.

**Figure 3: The number of people drops out from ART services**



### 3.1.5 Reasons for not using ARV Medication

The results on reasons for not using ARV are as shown in (Table 2) the results indicate that major reasons are related to the side effects such as vomiting (25.1%) frequently sickness (19.9%) and decrease in CD 4 (11.2%). Another major reason is poverty accounting for 20.9% of the respondents. This implies that due to poverty People Living with HIV/AIDS (PLWHIV/AIDS) were not able to support their daily food requirements, treatments of diseases and even were not able to pay transport cost during health clinic services. The side effects were mainly attributed by reaction of the medication to some PLHIV/AIDS, body weakness of some of the patients and too late in adherence to ART medication.

Different results obtained by Ogba (2004) in Nigeria in his study on Non Adherence to HIV/AIDS Therapy is Dangerous Pharm news revealed the reasons for not using ARV were many including taking too many pills per dose decreases the level of adherence, side effects to patients who experience adverse reactions, non availability of ARV drugs and high costs of ARVs.

**Table 2:** Reasons for not using ART Medication

| Reasons                  | Respondents (%) |            |            |            |            |            |            | Total<br>N =99 |
|--------------------------|-----------------|------------|------------|------------|------------|------------|------------|----------------|
|                          | A<br>n=15       | B<br>n =15 | C<br>n =10 | D<br>n =10 | E<br>n =10 | F<br>n =24 | G<br>n =15 |                |
| Vomiting                 | 22.2            | 16.7       | 10         | 14.3       | 80         | 10         | 22.2       | 25.1           |
| Frequently sickness      | 30              | 33.3       | 10         | 14.3       | 20         | 10         | 22.2       | 19.9           |
| Early death              | 22.5            | 16.7       | 10         | 14.3       | 0          | 10         | 22.2       | 11.2           |
| Decrease of CD4          | 15              | 8.3        | 3.3        | 20.5       | 0          | 20         | 11.2       | 11.2           |
| Poverty                  | 10.3            | 25         | 50         | 28.6       | 0          | 10         | 22.2       | 20.9           |
| Less resistance to virus | 0               | 0          | 16.7       | 8          | 17.2       | 40         | 0          | 11.7           |

Key: n= Number of respondents A= Makole Health Center B= Mirembe Hospital C= St. Gemma Hospital D=Kibaigwa Dispensary E = Mkoka Health Center F= Dodoma Referral Hospital G= Kongwa Hospital

### 3.2 The social - economic factors influencing PLWHIV/AIDS adhering to ART services

The results in Table 3 shows that 66.7% in Mirembe and 33.3% in St. Gemma revealed lack of employment support was a factor affecting adherence to ARV services to People Living With HIV/AIDS while lack of confidentiality noted 50% in Makole and 50% in Mirembe hospital were the factors affecting PLWHIV/AIDS adherence to ARV services(Table 3). Other main socio-economic factor revealed was patients' preference to traditional medicine 30% in Mirembe and 30% in Dodoma General Hospital.

Similar study conducted in Kenya by Gatongi et al; (2008) revealed factors affecting the adherence to ARV medicines by PLWHIV/AIDS were being away from home 68.8% , being too busy 58.9% , forgetting 49%, having too many medicines to take 32.6% and stigma attached to ARVs 28.9%.

**Table 3:** The social - economic factors influencing PLHIV/AIDS adhering to ART services

| Socio-economic factors                       | Health centers/Hospital |           |           |           |           |           |           | Total (N=99) |
|--|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|
|  | A<br>n=15               | B<br>n=15 | C<br>n=10 | D<br>n=10 | E<br>n=10 | F<br>n=24 | G<br>n=15 |              |
| Long distance to health facility             | 8.7                     | 13        | 13        | 13        | 8.7       | 26.1      | 17.4      | 100          |
| Stigmatization                               | 19                      | 9.5       | 9.5       | 9.5       | 14.3      | 28.3      | 14.3      | 100          |
| Bad cultural belief                          | 5.9                     | 11.8      | 5.9       | 11.8      | 17.6      | 29.4      | 17.6      | 100          |
| Religious influences                         | 23.8                    | 4.8       | 9.5       | 9.5       | 9.5       | 23.8      | 19.0      | 100          |
| Lack of confidentiality                      | 50                      | 50        | 0         | 0         | 0         | 0         | 0         | 100          |
| Lack of employment support                   | 0                       | 66.7      | 33.3      | 0         | 0         | 0         | 0         | 100          |
| Patients preference to traditional medicines | 10                      | 30        | 10        | 10        | 0         | 30        | 10        | 100          |

Key: n= Number of respondents A= Makole Health Center B= Mirembe Hospital C= St. Gemma Hospital D=Kibaigwa Dispensary E = Mkoka Health Center F= Dodoma Referral Hospital G= Kongwa Hospital.

## IV. Conclusions And Recommendations

The study revealed the majority >90% of PLWHIV/AIDS in three hospital Mirembe, Dodoma General and Kongwa; two health centers including Mkoka and Makole and Kibaigwa dispensary used ARV drugs except 40% of PLWHIV/AIDS in St. Gemma Hospital. Also the study revealed majority of the PLWHIV/AIDS did not change the type of ARV pills they were taking but it was revealed more than 50% of PLWHIV/AIDS in all health centers and hospitals experienced drop out from the utilization of ARV pills because of many factors including distance from the health centers where they used to take their pills, experience of side effects from use of ARV pills among patients, poverty and ARV pills less resistance to HIV/AIDS. Not only that but also the study revealed four major socio-economic factors influencing poor adherence to ART services among PLWHIV/AIDS including lack of employment support (66.7 %,) lack of confidentiality (50 %,) patient's preference to traditional medicines (30%) and cultural belief (29.3%).

Lastly the study recommends the followings; All patients experienced ARV drug side effects should report to health centers and hospitals for advise and services because not all side effects require a change of drugs or discontinuation, PLWHIV/AIDS should be assisted by Government, Non-Government Organizations and family members to secure soft loans that will enable them to establish income generation activities that will improve their living standard, education on patients confidentiality should be provided to services providers in hospitals and health centers, education should be provided to PLWHIV/AIDS on the impacts of using unauthorized traditional medicines and provision of education to the entire community on the impacts of bad cultural practices and beliefs to PLWHIV/AIDS.

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