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Challenges Facing Antiretroviral Medication Adherence among People Living With Hiv/Aids. A Case of Dodoma City and Kongwa District in Tanzania

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Abstract
The purpose of this study is to analyze the challenges of adherence to antiretroviral therapy (ART) for people living with HIV/AIDS (PLWHIV/AIDS) in Dodoma City and Kongwa District, Tanzania. Data was gathered through document reviews, interviews, and Focus Group Discussions. For this study, 99 respondents were chosen and interviewed as representatives from four hospitals, two health centres, and one dispensary. The quantitative data was obtained using an interview schedule, while the qualitative data was collected using Focus Group Discussions and key informant interviews, and the quantitative data were analyzed using SPSS version 16 software while qualitative data were analyzed by using content analysis. The study revealed five challenges facing PLWHIV/AIDS including the leading stigmatization followed by taking too many tablets, negligence in taking tablets, side effects and the least was side effects impact of medication. The study recommends the following first families, health care facilities, dispensaries, and hospitals must treat PLWHIV/AIDS patients with dignity and respect. Also, global and local HIV/AIDS development partners, notably pharmaceutical companies, should seek ART dosages that allow PLWHIV/AIDS to take only a few medications.

Keywords: Challenges, ART, adherence, People living with HIV/AIDS

1.0 Introduction

HIV/AIDS is a huge public health concern around the world. According to estimates, more than 37.7 million people worldwide are estimated to be infected with HIV (UNAIDS (2021). Despite having only 10% of the world's population, Sub-Saharan Africa is the world's most severely afflicted region (URT, 2012), accounting for around two-thirds of all HIV-positive people worldwide. Adolescent girls and young women (AGYW) account for around 61 percent of HIV-positive adolescents and young people, with 78 percent living in Sub-Saharan Africa (Khalifa *et al.,* 2019).

In Tanzania one out of every twelve persons is thought to be HIV positive, according to estimates (URT, 2012). Adherence is ability to follow a treatment plan, take medications at prescribed times and frequencies, and follow restrictions regarding food and other medications (WHO, 2013). Establishing and sustaining drug adherence is a difficult goal for someone with a chronic illness, even when the treatment plan is simple and the patient is symptomatic. Even a single missed three-medication-dose episode, on the other hand, could compromise HIV treatment permanently, resulting in reduced efficacy and increasing medicine resistance.

For immunological improvement and virological suppression, at least 95% adherence has been recommended (Jordan 2008). Antiretroviral drug adherence is especially important in the treatment of HIV patients, where greater than 95% adherence is required to maximize the efficacy of antiretroviral therapies. Adherence studies in the developed world have shown that higher levels of adherence are linked to better virological, immunological, and clinical outcomes (Mghamba, 2012).

Since the advent of antiretroviral therapy around the world, there has been a decline in HIV and AIDS-related mortality and morbidity (Nasri *et al.,* 2013). The efficacy of antiretroviral therapy, on the other hand, is dependent on a high level of adherence. In early 2004, Tanzania began giving antiretroviral therapy. Under the supervision of the National Care and Treatment Program, care and treatment centers for

HIV/AIDS patients were constructed (URT, 2015). Antiretroviral therapy is administered to eligible patients at the Care and Treatment Centre (CTC), as well as counseling on ARV adherence, treatment of opportunistic infections, nutrition counseling and growth, and monitoring and evaluation.

There has been a decrease in HIV and AIDS-related mortality and morbidity since the introduction of antiretroviral medication around the world. Antiretroviral therapy, on the other hand, relies on a high level of adherence to be effective. Tanzania began providing antiretroviral therapy in early 2004. Care and treatment centres for HIV/AIDS patients were built under the direction of the National Care and Treatment Program (Mghamba, 2012). The Care and Treatment Centre (CTC) provides antiretroviral therapy to qualified patients, as well as counseling on ARV adherence, treatment of opportunistic infections, dietary counseling and growth, and monitoring and evaluation. In HIV patients, antiretroviral therapy decreases the viral load and raises CD4 cell count, improving their quality of life.

ART is a lifelong treatment that requires complete dedication to the treatment regimen (El-Sadr, 2013). There is limited information on the obstacles that PLWHIV face on a day-to-day basis when it comes to HIV/AIDS adherence. Factors influencing ARV adherence, on the other hand, are well understood. Weave *et al.* (2014) observed that forgetting to take medication, being preoccupied with something else, and falling asleep during medication time all have an impact on ART adherence in Indonesia. Mbuagbaw *et al.* (2012) revealed that factors influencing adherence in Cameroon were education, side effects experienced, and the ARV reminder mechanism. However scant information exists on challenges facing the adherence of ARV medication in Tanzania. Therefore, the study aimed at investigating the challenges facing antiretroviral medication adherence among people living with HIV/AIDS in Dodoma City and Kongwa District, Tanzania.

2.0 Methodology

The study was conducted in Dodoma city and Kongwa District. The research areas were chosen based on the region's HIV prevalence rate, with Kongwa Municipality having the lowest rate at 2.2% and Dodoma Municipality having the highest rate at 3.2 %. Because of the intention to perform a comparison study between rural and urban environments, Kongwa District and Dodoma Municipality were also chosen for this study.

The study used a cross-section research design, which entailed gathering data at a single point in time. A cross-section research design was applied because it is quick, inexpensive, and can suggest future directions (Jonson, 2010). The study population was people living with HIVAIDS (PLWHIVAIDS). The sample of the study was 99 People Living with HIV/AIDS. The study employed a multistage sampling technique whereby at the first stage purposively Dodoma City and Kongwa Districts were selected purposively. Then the second stage is followed by the selection of seven health centres with varied cases of the number of People Living with HIV/AIDS. The third stage involved the selection of four health centres with people living with HIV/AIDS in Dodoma city including Dodoma Referral Hospital, Makole Health Centre, St. Gemma Hospital and Mirembe Hospital and three health study areas in Kongwa District including Mkoka Health Center, Kongwa Hospital and Kibaigwa dispensary. Also, the study employed four key informants including a Medical Officer, Clinical Officer, Counsellors and ART Nurse in each health centre, dispensary and hospital.

The study employed a mixed method of data collection. Both qualitative and quantitative data were applied in this study. The mixed-method was applied because it combines qualitative and quantitative data in a single study by integrating their strength (Tashakkori, 2003). Qualitative data were collected through interviews with Key Informants and Focus Group Discussions. A total of four (4) Focus Group Discussions (FGDs) were held, two in each district whereby each FGD consists of six registered people living with HIV/AIDS. Each FGD was composed of three female and three male respondents. Fourteen key informants including medical officers and ART nurses were interviewed in the study area. Quantitative data were collected through semi-structured interviews. 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.

3.0 Results and Discussion

Socio-demographic characteristics of the respondents

Age

The age of People Living with HIV/AIDS varied across the health facilities in Makole about half 53% were aged between 36-50 years while in Mirembe Hospital majority 60% same to Kibaigwa were aged between 36-50 years. The age category between 15-35 years 80% found in Mkoka Health Centers and 60% in Kongwa District Hospital (Table 1). The causes of the large number of youth living with HIV/AIDS at Mkoka Health Centers and in Kongwa District Hospital was motivated by the presence of international maize market in Kibaigwa which attract many business people across East and Central Africa and the presence of big vehicle stop at Kibaigwa and Mkoka highway which encourage sexual relations among people from various parts of the country and even abroad especially the drivers of long vehicles from Burundi, Democratic Republic of Congo and Rwanda.

Table 1: Socio-demographic characteristics of respondents

Age		**A n=15**	**B** n=15	**C n=10**	**D n=10**	**E n=10**	**F n=24**	**G n=15**	**χ 2**	**P value**
15-35		40	27	50	40	80	42	60		
36-50		53	60	30	60	20	42	33	13.135	0.359
>50		7	13	20	0	0	16	7		
Sex	Male	20	53	40	40	40	50	33	4.866	0.561
	Female	80	47	60	60	60	50	67		
Education	Primary	73	80	60	70	70	25	73		
	Secondary	27	7	30	20	10	21	27	36.612	0.006
	Informal	0	7	10	10	20	25	0		
	College	0	7	0	0	0	29	0		

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

Sex

The results show that 61% of PLHIV/AIDS identified in the study area were female while only 39% were male (Table 1). The causes of this situation were attributed to the fact that HIV/AIDS testing for pregnant women is mandatory to keep a safe new expected baby to be born from infections. The findings of the study are comparable to those of Simbayi *et al.* (2017), who reported that the majority of patients who were tested and identified as living with HIV/AIDS were female.

Education Level

Results on education level show that majority 65% of the respondents had primary education and very few 5% had tertiary education (Table 1). This level of education for the majority can be considered adequate to understand the process of ART including adherence. This level of education for PLWHIV does not differ from the level of education for the majority of Tanzanians, indicating no segregation get HIV/AIDS for primary education.

The results show that respondents with primary education in St. Gemma Hospital were 60% and Kibaigwa 70% while female PLWHIV/AIDS was 60% each both in St. Gemma and Kibaigwa Hospital. The causes of having more than half over 60% of PLWHIV/AIDS in Kibaigwa and St. Gemma Hospital was attributed to the presence of pull factors including big vehicle stop, and international maize market at Kibaigwa, and at St. Gemma, the presence of the Institute of Rural Development Planning motivate small business among young who forgone secondary education and decide to join in entrepreneurship activities. The study finding is in line with that of Igulot and Magadi (2018) who found that majority of people living with HIV/AIDS had primary education levels.

Marital Status

The results show that the majority of people infected with HIV/AIDS were married ones. Married monogamy (52%, (n =99), while single marital status were 35% while the rest were married polygamy 5% and 5% each divorced and widow (Table 2). Married monogamy PLWHIV/AIDS in Kibaigwa 80%, Mkoka 60%, Dodoma Referral Hospital 63% and Kongwa 67% (Table 4.3). The cause of this finding was individuals who experienced marital practices are highly vulnerable to HIV/AIDS infections. This implies that PLWHIV/AIDS reported in health centres majority were married couples. In Dodoma referral hospital married monogamy infections were high 63% because of the existence of many socialization events including a high population among youth from higher learning institutions and social events and recreation facilities including alcoholism, music festivals, night clubs to mention a few. Married monogamy was more infected with HIV/AIDS compared to married polygamy because married polygamy people they had freedom of consult their spouse and inform they are the desire of marrying another wife while married monogamy had no that chance due to religious limitations and individual weakness whereby spouse cheat each other as a result they become infected with HIV/AIDS.

Table 2: Marital status of People Living with HIV/AIDS

Marital status	Respondents (%)							
	A n =15	B n =15	C n =10	D n =10	E n =10	F n =24	G n =15	Total N= 99
Single	53	33	50	10	40	29	33	35
Married monogamy	47	27	20	80	60	63	62	51
Divorced	0	15	10	0	0	3	0	5
Widow	0	20	10	0	0	0	0	4
Married Polygamy	0	5	5	10	0	5	5	5

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 finding differs from that of Shisan *et al.* (2016), who discovered that married people who live with their spouse have a much lower risk of becoming HIV positive than people in other marital status categories.

Economic Activities

The results show that the main income generation activities were business 31% and farming 30%. Others food vending, casual labor, employment in public and private sectors and tailoring (Table 3). The last group was students 5% with no economic activities. This implies that the 5% of students reported had HIV/AIDS presents youth as one of the groups infected with HIV/AIDS. The result shows that farming was the main economic activity of PLHIV/AIDS registered in Kibaigwa Hospital 50% and Dodoma Referral Hospital 46%. In the case of business activity, 50% registered in Kibaigwa Hospital while those who practised both farming and business 40% registered in Mkoka Health Centre (Table 3). For the case of Dodoma Referral Hospital and Kibaigwa majority of PLHIV/AIDS registered were farmers and business people because most of them came from neighbouring streets close to urban engaging in agriculture especially vegetable cultivation. There is a relatively large proportion of 50% of respondents involved in business in Kibaigwa centre because of its location along the highway with large vehicle stations. Also, there is a big international market for maize which opens opportunities for other businesses. The study finding differs from that of Ismail *et al.* (2017) which revealed that 78% of people living with HIV/AIDS in Sudan had no source of income. Therefore, this study establishes that in the study area only student 5% had no sources of income as compared to the rest category of people living with HIV/AIDS.

Table 3: Major Economic Activities of PLHIV/AIDS

Activity	Respondents (%)

	A n =15	B n =15	C n =10	D n =10	E n =10	F n =24	G n =15	Total N=99
Farming	13	20	20	50	35	46	27	30
Business	40	0	20	50	20	8	73	31
Employed	0	13	20	0	0	6	0	5
Casual	0	13	20	0	0	25	0	8
Food vendor	20	33	20	0	0	25	0	11
Tailoring	0	13	0	0	0	0	0	2
Student	13	13	10	0	0	0	0	5
Farming & business	7	5	5	0	40	0	0	8

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

Challenges facing People Living with HIV/AIDS in the Community.

Stigma

The challenges facing PLWHIV/AIDS are divided into two main categories those that are internal and those that are external. Internal challenges are those within the control of the patients including negligence in taking pills, taking too many pills, poor diet while challenges that are external includes stigma and side effects. The results show that 46.3% of people living with HIV/AIDS (PLWHIV/AIDS) reported facing the challenge of stigmatization from the community members (Table 4). This circumstance arose as a result of community members' fear of contracting HIV/AIDS from PLWHIV/AIDS. PLWHIV/AIDS claimed to be alienated from their families as a result of stigmatization, particularly in matters such as utensils for preserving food during meal times, and sharing of housing, to name a few. This was confirmed during Focus Group Discussions and key informant interviews where it was pointed out that stigmatization was the main challenge facing PLWHIV/AIDS. For example, during the FGD one woman from St. Gemma Hospital reported that,

"My relatives have discriminated against me because I have HIV/AIDS, and I have been given only my utensils for food and tea." All of this was done in the fear of contracting HIV/AIDS".

The preceding observations demonstrate that the stigma faced by PLWHIV/AIDS patients begins at home and that this circumstance has an influence on the patients' wellbeing since they feel mistreated and disregarded by their relatives.

Table 4: Challenges facing adherence to ART services

	Health centers/Hospital							
Challenges	**A n =15**	**B n =15**	**C n =10**	**D n =10**	**E n =10**	**F n=24**	**G n =15**	**Average**
Stigmatization	33.3	40	90	60	40	33.3	26.7	46.3
No challenge experienced	33.3	46.7	0	40	20	45.8	20	29.4
Negligence in taking tablets	33.3	6.6	0	0	10	20.8	20	12.9
Poor diet	0	6.7	0	0	20	0	13.3	5.7
Taking too many pills	6.6	0	40	5	40	4.2	50	20.8

Side effects	26.7	6.7	10	10	10	12.5	0	10.8

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.

A similar study conducted by Majumdarand Mazaleni (2010) in South Africa revealed that People Living with HIV/AIDS faced challenges of poverty, isolation, lack of acceptance and fear of disclosure that in other words, they termed this situation as stigmatization.

Negligence in taking ARV tablets

According to the findings, 12.9% of respondents failed to take ARV medications (Table 4). The lack of a supportive individual to remind the patient when to take his or her medications was cited as the explanation of this finding. It was also brought on by anxiety of the sickness, which altered the nervous system. Also, dissatisfaction in life caused some to lose track of when they should take their medication. This was confirmed during Focus Group Discussions and Key Informant Interviews whereby cases of neglecting taking medication among PLWHIV/AIDS were reported. For example, during the FGD a man from Mkoka health centre had to say this;

''For the past ten years, I've been using ARVs. I occasionally stop taking ARVs because I believe my body is healthy and strong''.

According to the above quote, people living with HIV/AIDS require close monitoring to provide support, particularly in terms of reminding them of the importance of correctly taking ARV medicine.

Poor diet

According to the findings, 5.7% of the respondents reported the inadequate diet is the least challenge faced by those living with HIV/AIDS (Table 4). The scenario arose because some of the respondents lacked the financial resources to purchase food that met their daily dietary requirements while others do not know proper diet requirements. This was confirmed during Focus Group Discussions and key informant interviews it was revealed that poor diet was a challenge among people living with HIV/AIDS. For example, during FGD a woman at Kibaigwa Dispensary reported that;

''There are days when I miss three meals and end up eating only once a day. Even what I get is limited to a single type of food. It is a food that is deficient in nutrients''.

According to the preceding statements, poor people living with HIV/AIDS were unable to meet their daily dietary requirements. To stay alive, they had to eat whatever food was available.

This finding is similar to that of Ali *et al.* (2021) and Alebel *et al.* (2020), who reported that poor diet was common among adult HIV/AIDS patients, particularly those in advanced stages of the disease.

Taking too many pills

According to the study, 20.8 % of respondents said that taking too many medications was a challenge (Table 4). The tiredness of PLWHIV/AIDS from taking ARV medication was attributed to this finding. Similarly, it was discovered during Key Informant Interviews and Focus Group Discussions that PLWHIV/AIDS were tired of taking medications regularly, which they described as chaotic. One woman at Dodoma Referral Hospital reported that;

"It's inconvenient for me to believe I need to take medication every day. Taking the medication daily is demanding from a psychological standpoint. It's as though the drug constantly reminds you that you're unwell. Furthermore, I am afraid that if I do not take the prescription daily, my health would decline".

The above quotes show that PLWHIV/AIDS are not comfortable in taking ARV drugs daily. This is a call for HIV/AIDS global and national stakeholders to find alternative medication doses for people living with HIV/AIDS in developing countries.

Side effects

The study revealed that 10.8% of the respondents experienced a challenge of side effects (Table 4). This finding was caused by the effects of ARV tablets. This finding was confirmed during key informants' interview and FGDs whereby many cases of side effects experienced by PLWHIV/AIDS was reported. One man at Mirembe Hospital during FGD had to say this;

"When I take ARVs at night, I start sweating and have a slight fever. I also have diarrhea and headaches from time to time".

The above quotes show that medication taken by some PLWHIV/AIDS has side effects to them.

4.0 Conclusion and Recommendations

Conclusion

Generally, the study was an attempt to unveil the challenges facing people living with HIV/AIDS (PLWHIV/AIDS) in Tanzania particularly in Dodoma city and Kongwa District. This mixed approach study unveiled the ongoing challenges facing PLWHIV/AIDS. The study concludes that stigmatization is a key challenge facing PLWHIV/AIDS. Also, PLWHIV/AIDS are tired of taking many pills regularly and thus they call for a new medication that would require less application of medication. Last the study concludes PLWHIV/AIDS have not managed to acquire a balanced diet because of poverty and lack of directives in proper daily food nutritional requirements.

Recommendations

The study recommends the following; Families, health care facilities, dispensaries, and hospitals must treat PLWHIV/AIDS patients with dignity and respect, maintain privacy and confidentiality, and avoid constructing segregated locations and items for usage.

Global and local HIV/AIDS development partners, particularly pharmaceutical businesses, should seek medication dosages that need persons living with HIV/AIDS to take fewer medications.

Families and other stakeholders, including the local government, should financially support people living with HIV/AIDS, particularly those with low income, in obtaining the nutritional meals they require.

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