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Short communication

Factors Affecting Treatment Adherence among HIV-Positive Patients in Eritrea

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Strict adherence to anti-retroviral therapy (ART) is critical for sustained suppression of viral replication and prevention of opportunistic infections that often lead to disability or death. With increased availability of ART in recent years, achievement of optimal adherence has become very important in the management of HIV/AIDS in Eritrea. To assess the factors affecting adherence to ART of HIV-positive patients visiting ART clinics in Halibet national referral hospital and Hazhaz hospital, a cross-sectional descriptive study was conducted from January to March 2016. A simple random sampling technique was used to select the study areas. Participants were selected using systematic random sampling from patients who came to take their medication from the ART out-patient department of the hospitals. Semi-structured interviews were conducted with 150 patients. Almost half of the patients were between the age group of 30-40 years. Patients with an educational level of 9-12th grade had higher adherence levels. There was a significant association between age of participants and the dose missed (P= 0.002, 95% CI). The presence of adverse drug reaction (ADRs) was common, and 65% of the participants experienced them. 78.5% of the patients who experienced ADRs reported they would consult a doctor when experiencing the symptoms. 56.6% of the participants said that they always take ART on time. 62% reported they did not miss any dose of anti-HIV medication in the last seven days. Overall, the patients had good adherence to ART treatment. Perceived stigma and discrimination and medication side effects were the main reasons for non-adherence. Continuous health education on ART management and periodic counseling emerged as contributors for a better adherence level.

Keywords: HIV/AIDS, antiretroviral therapy, treatment adherence, adverse drug reaction

Human immunodeficiency virus (HIV/AIDS) is one of the most destructive epidemics the world has ever witnessed (1). According to the joint United Nations programme on HIV/AIDS (UNAIDS) report, there are about 35 million HIV infected persons in the world and of these around 24.7 million are found in Sub-Saharan Africa (2). Around 78% of people affected with HIV/ AIDS in this region are aged between 15-49 years (2). The catastrophic impact of HIV/AIDS in Sub-Saharan Africa is threatening development in all sectors of society.

In Eritrea, there are approximately 40,000 people living with HIV/AIDS. Anti retroviral therapy (ART) in Eritrea was started in 2005 and since then it has been rendered to all patients for free of any charge. Totally, there are 25 ART sites. By zone, there are 6 sites in Zoba Maekel, 5 sites in Zoba Debub, 2 sites in Zoba Anseba, 4 sites in Zoba Gash Barka, 5 sites in Northern Red

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Sea and 2 sites in Southern Red Sea. At the start of 2015, there were 9103 HIV patients on ART, 1036 died and 936 lost follow up; so at the end of 2015 there were 8598 patients alive and currently on ART (3).

Treatment adherence describes the degree to which a patient correctly follows medical advice. It mostly refers to medication compliance, but it is also referred to in situations like medical device use, self-care, self-directed exercises, or therapy sessions. ART adherence corresponds to the ability to comply with ART medication prescribed and provided in the clinic for at least 95% of the time. Compliance may be affected both by the patient and the health-care provider, and a positive physician-patient relationship has great impact on compliance improvement (4).

ART decreases the total burden of HIV in patients, maintains their immune system function, and prevents opportunistic infections occurrence that often causes death. Adherence to ART is a key factor to prevent treatment failure in most patients infected with HIV. A significant association between medication adherence and viral suppression was reported in patients subjected to the treatment of HIV (5-6).

Remarkably, defaulting from treatment is one of the most critical problems in the management of HIV/AIDS. Low adherence can result in cross-resistance to other antiretroviral drugs (7). Non adherence can potentially interfere with future therapeutic option for those being treated and those who subsequently become infected with resistant virus (8). Ninety-five percent adherence to antiretroviral drugs regimen is often needed to achieve optimal rates of viral suppression in people living with HIV/AIDS (9).

Although many methods have been used in clinical practice to measure adherence, self-reports of the taken medication is the most reasonable, accurate, and ideal measurement; because it promotes a truthful exchange between the treating clinician and the treated patient.

The risk of adverse drug reactions (ADRs) arises because of both the immune system decline due to the disease and the safety profiles of the complex ART drugs (9).

There are a number of documented mild to severe ART related ADRs which depending on the environment, may be short to long term (6, 9-10). ADRs may differ between developed and developing countries because of difference of conditions such as malnutrition, tuberculosis infection and the degree of HIV progression in patients (11).

Apart from the environment and the type of ART regimen, a number of other risk factors may influence ADR. These include age, gender, duration on treatment, CD4 count, viral load and body mass index (BMI) (12-13). These risk factors the ADR type. For example females are more likely to develop rashes and hepatotoxicity; and patients older than 40 years are at a higher risk of developing peripheral neuropathy during ART(12,14). The ART duration is inversely related to ADRs development; possibly as a result of stability in treatment regimen, coming after many changes and a final acceptable regimen settlement (12).

Generally, whenever adherence is compromised it leads to treatment failure, increased hospitalization, and to morbidity and mortality, which significantly affects the quality of life (15). Hence this research aimed to assess the factors which contributed more to treatment adherence and factors hindering patients from acceptable adherence level.

Materials and methods

Sampling method

This cross-sectional study was performed on HIV patients visiting Halibet and Hazhaz hospitals from January to March 2016. A simple random sampling technique was used to select the study areas. Halibet national referral hospital and Hazhaz hospital were selected between the 6 sites that give

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anti-HIV medication. The samples were then chosen using systematic random sampling of the patients who came to take their medication at ART clinics of the hospitals. Ethical approval for this study was granted by Asmara College of Health Sciences research ethical approval committee. In addition, after brief explanation of the purpose of the study, verbal consent was obtained from the study participants and those who volunteered participated in the study.

Data collection

A semi structured questionnaire was used to assess the adherence of ART among HIV-positive patients. The questionnaire was pretested for its sens-itivity, comprehensibility, and appropriateness of language. The validity of the tool was established as it was adopted from previous accomplished studies. The tool was modified and finalized according to the pilot study and recommendations of the research team.

A semi structured questionnaire which included both closed and open ended questions was used to extract information about factors affecting treatment adherence. The questionnaire included questions related to the respondent's age, education, occupation, marital status, presence of ADRs, treatment adherence, questions assessing counseling services and its evaluation, and other parameters. The questionnaire was administered after its translation to local language (Tigrinya). Data was collected using pretested questionnaire during a 6 weeks period, in which 150 patients were interviewed. A letter of authorization was collected from School of Public Health, Asmara College of Health Science and permission was obtained from each hospital administration directors/ before beginning the study. Verbal consent was obtained from the participants before questionnaire administration. Confidentiality and privacy was maintained by withholding personal identifiers and freedom to withdraw from the study at any stage was ensured.

Statistical analysis

Collected data was analyzed using Statistical Package for Social Sciences (SPSS version 20). A P value less than 0.05 was considered as statistically significant.

Results

Demographic characteristics

In this study, 150 participants were interviewed. Almost half of them were males and fall under the age of 30-41 years. More than half (68.6%) of the participants were from Zoba Maekel, with the least making 2% from Northern Red Sea. More than half were married, and the majority of the participants were Christians (86%), 48% went to secondary school and 54.6% were employed (Table 1).

Results on the presence of ADR showed that 65.3% of the participants have experienced ADRs. Out of the 98 participants who were experiencing ADRs, 39.79% experienced the symptoms 2 weeks after initiation of medication, and 50% experienced the symptoms daily. Moreover, 78.5% of subjects with ADRs said that they would consult a doctor when they experience these symptoms.

From the 150 participants 56.6% said that they always take ART on time. Majority of the participants (62%) reported they didn't miss any dose of anti-HIV medication in the last seven days, and only 5.3% said that they missed 3 doses of anti-HIV medication.

When the participants were asked about the person who supports them in taking the drugs, 46% reported that no one supports them, for 32% their wife/husband, for 7.3% their children, for 8.6% their sister/brother, for 3.3% their relatives, and for 1.3% health personnel support them.

More than half (66%) of the participants said that they prefer to come to the out-patient department (OPD) at 8 A.M. They prefered that time because there were less people (22%), because they were busy in other times (40.6%), and 36% prefered the time because the health personnel were

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Table 1. Demographic profile of the participants

		Percentage			Percentage
Gender	Male	51.4%	**Address**	Zoba Maekel	68.6%
	Female	48.6%		Zoba Debub	11.3%
				Zoba Gash Barka	12.6%
Age	18-29	15.9%		Zoba Anseba	5.3%
	30-41	46.7%		Zoba northern red sea	2%
	42-53	32%	**Educational level**	Illiterate	2.6%
	54-65	5.3%		Elementary	10%
	66-77	1.3%		Junior high	33.3%
Marital status	Single	30%		Secondary	48%
	Married	59.3%		Higher education	6%
	Widowed	6.6%	**Religion**	Christian	86%
	Divorced	4%		Muslims	14%

only available at that time.

When the participants were asked if they have ever stopped medication at any time since they have started, 74% have never stopped medication.

Out of the participants who stopped taking anti- HIV medication, 38.4% stopped because of ADRs, 15.3% because of work, 12.8% because of unfortunate family events, 30.7% because of stigma, and 2.5% stopped because of religious beliefs.

When the participants were asked as to why they were still taking the medication, 77.3% stated as to prolong their life, 18.6% to prevent diseases, 2.6% were still taking it just because they were told to do so.

Almost half of the participants (50.6%) said that they felt uncomfortable coming to the OPD to take their medication. When they were asked, what should be done in order to make others feel comfortable to come and take their medication in the OPD, 38.6% said self-confidence of the patient should be increased, 21.3% said the society should accept them.

Almost all of the participants (99.3%) had counseling regarding treatment adherence and thought that the counseling they received was effective as 82% of them rated the counseling given during their visit as very good, 24 (16%) evaluated it as good.

Discussion

This study assessed the factors affecting treatment adherence of HIV/AIDS patients. Demographic distribution of the participants revealed that the majority (49.4%) of those who didn't miss their dose were among the age group of 30-41 years and most of those who missed three doses were among the age group of 18-29 years. There was a significant association between age of participants and the dose missed (P= 0.002). Half of the participants were between the age group of 30-41 years, have finished their secondary school, and were probably able to adhere more to the treatment because they could understand the instructions given by the clinicians and follow them properly. This finding was similar to a study performed in Nigeria. Although higher level of education cannot be directly linked to higher knowledge of HIV/AIDS, but those people with a better education have generally a greater access to information and are therefore more likely to make better informed

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decisions (16).

A similar observation was reported in San Francisco in which there was no association between educational level and adherence, but the illiterate participants had lower adherence than the educated ones. In contrast, a study conducted in South Africa was in contrast with our observation, and they found greater adherence amongst those with lower levels of education and amongst single, separated, divorced or widowed groups compared to those married and cohabiting (17).

Social acceptance is an important factor which influences the level of adherence, yet, 46% of the participants had no one to support them. This showed that there was a limited progressive change in the acceptance of the disease by the society and the patients were afraid of being recognized as HIV-positive and this showed that they have felt stigma. Our findings were inconsistent with a study performed in Eritrea in 2014, in which only 3.3% of the participants had no one to support them. But they were in accordance with the study conducted in Nigeria in which the major reason given for non-adherence was inadequate family support in which only 15.9% received it (16).

We also found that half of the participants felt uncomfortable coming to the OPD to take their medication. This indicates that the participants were afraid of being recognized as HIV-positive patients and being isolated from the society, so this reduced the degree of adherence to ART. For many patients, optimal adherence to antiretroviral therapy was often difficult to achieve for reasons ranging from patients factors to patient-health professionals relationship and clinical factors. There were similar findings in the Nigerian study, where as many as 28.4% of patients had no one to support them or no dependents, while 12.8% had dependents (16). Similar findings were found in a research conducted in South west Ethiopia, in which the majority (77.8%) of the participants received social support (12).

The adherence factors were analyzed by asking different retrospective questions such as if they took their ART drugs on time. Overall the estimated adherence was good since it was greater than or equal to 95%, since they didn't miss more than 3 doses, and also most of them took their ART on time. In a similar study conducted in Eritrea, 35.3% of the participants revealed that they always took ART drugs on time and 3.7% revealed that they rarely took ART drugs on time. Majority (86%) said they didn't miss any doses, therefore the overall adherence was good (18).

In the present study, 94.6% of the participants thought that their health improved since they started taking anti-HIV medication. This implies that they have positive attitude towards the medication and it also heightens trust in the medication as they were more likely to adhere to the treatment. There was a similar finding in a study performed in North western Ethiopia, which showed that there was a significant improvement of health soon after initiating ART which increased trust in the medication (19). Since only 30% of the participants said the treatment stopped them from carrying out their daily activities, therefore it would not be a problem to adhere to the treatment and this is an encouraging finding.

Side effects were one of the major problems to the patients, as 64.9 % of participants experienced side effects. Most of the patients who missed doses experienced side effects. ART can often lead to adverse reaction that may be temporary such as headache, nausea, insomnia, skin rashes, muscular pain, dizziness, vertigo. Most of the patients who stopped their medication have experienced ADRs since they started taking the medication. 79.4% of the patients who stopped medication at any time have experienced ADRs. Similar findings were found in North western Ethiopia where most patients had seen the devastating effects of ADRs on their bodies, and those who experienced unanticipated or intolerable side effects missed doses or discontinued therapy

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altogether (19). Similarly, in Nigeria, adherence decreased as the number of medications and side effects increased and as competing priorities prevailed in patients' life (16).

Most of the participants (99.3%) have received counseling during their visit to take their medication. About half of the participants evaluated the counseling as very good so this implies another positive achievement in the adherence of ART. Most of the participants (99.3%) followed instructions from the health professionals. This can explain another positive enhancement in the adherence of ART, but since 46.6% of participants said that they followed the instructions most of the time, this shows the need for high input of health professionals to make the participants follow the instructions all of the time.

In conclusion, as in Eritrea HIV/AIDS has been the fifth leading cause of inpatient death, in five years of age and above, it is imperative that Eritrean ART program be strengthened. The level of adherence based on timing, in which more than 56% of the participants took their medication on time, and frequency of missed doses, in which 62% of the participants didn't miss a dose, is quite encouraging. With regard to the support they get, however, more has to be done in the awareness of the society to the disease in order to reduce stigma.

The present study showed that although majority of the patients had good adherence, there were some patients who couldn't adhere because of stigma and/or ADRs. Therefore, programs which are aimed at increasing acceptance of the patients by the society should be put into action to decrease the stigma felt by the patients. Regarding the ADR, effective education and information should be given to the patients by the health workers.

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Conflict of interest

The authors declared no conflict of interest.

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