

Conflicts in Yemen exacerbate lost to follow-up rates of people living with HIV

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Abstract

Introduction: The aim of the study is to examine demographic data of people living with human immunodeficiency virus (PLHIV) who are lost to follow-up (LTFU) during HIV treatment and care, in order to develop rapid and effective interventions to improve access to services in Yemen.

Material and methods: This is a retrospective descriptive study of health service data implemented in all sites that provided HIV treatment and care services from 2007-2012. The study population was 1,586 PLHIV registered at pre-antiretroviral (pre-ART) clinics and 995 under antiretroviral (ART) clinics with exclusion of transfers and deaths.

Results: Most of the LTFU at pre-ART and ART clinics occurred during the conflict period (2011-2012) and among males at age 25-49 years, especially from governorates where the services existed. The first 3 years showed higher rates of LTFU; 90% and 81% were among Yemenis, and 68% and 65% among young males at pre-ART and ART respectively. Sana'a governorate had the highest rate of LTFU among females at pre-ART, while Aden experienced the highest rate of LTFU among females under ART.

Conclusion: The conflict in Yemen was associated with an increase in the rate of LTFU among Yemeni young males, especially at governorates that experienced political conflicts. In-depth study on LTFU are needed, and improved counselling methods and patient's tracking systems are recommended.

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Key words: lost to follow-up of PLHIV, Yemen conflicts, retention in care, antiretroviral therapy.

Introduction

Since 1981, acquired immune deficiency syndrome (AIDS) has killed more than 35 million people. It is estimated that 36.7 million people were living with human immunodeficiency virus (PLHIV) in the world. At the beginning of the epidemic, most of PLHIV died at first 10 years of infection [1]. In 1996, antiretroviral therapy (ART) made a revolution in changing AIDS diagnosis to chronic disease. However, the number of deaths among PLHIV in developing countries is still high due to limited resources, which make the treat-

ment unaffordable. In 2003, a case of emergency situation has been announced in the world, and most of countries with limited resources and International Organizations implemented action plans to increase ART coverage. Therefore, more than a third of PLHIV who were in need of ART in these countries were able to get the treatment by the end of 2009 [2].

Since the ART does not cure HIV infection, PLHIV have to take treatment on a regular basis for the rest of their lives. But in some care and treatment programs, there are more than a third of patients lost to follow-up (LTFU) within the first three years from the start of ART [2]. LTFU in ART

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period is defined as an interval of 90 days or more, where PLHIV have missed their appointments at the ART clinic after last visit [3].

LTFU of PLHIV threatens the success of long-term treatment programs all over the world, and can cause serious consequences due to discontinuation of ART as well as increase risk of deaths. So, it is necessary to understand the underlying causes of LTFU [2].

Although there is a progress in HIV treatment in the last fifteen years, existing challenges does not ensure the continuity of ART and good attendance of PLHIV at HIV treatment and care clinics. There are various factors affecting access to health care services, which might be related either to PLHIV or to healthcare system [4].

The political commitment in Yemen toward national AIDS response is represented by the existence of National AIDS control Program (NAP) and National Strategic Plan for HIV and AIDS, where HIV treatment and care are considered as the main priority area [5]. However, there are only five locations established at government hospitals in five main governorates out of 22 governorates in Yemen (Sana'a, Aden, Taiz, Hodeida, and Mukalla) to provide treatment and care services for PLHIV, since 2007 by support of the Global Fund to fight AIDS, tuberculosis (TB), and malaria [6].

HIV epidemic in Yemen is driven mainly through sexual transmission in high-risk populations, especially female sex workers (FSW) and their clients, and men who have sex with men (MSM). According to 2011 HIV size estimates, the Country is having low HIV prevalence (0.2%) among the general population. However, an evidence showed that Yemen have a concentrated HIV epidemic among MSM (6%). Since 1987 till the end of 2012, the cumulative number of reported cases was 3,502 (71% Yemenis, 63% males). The estimated number of PLHIV in Yemen for the same period was 35,000 [7].

In fact, some countries in the Middle East and North Africa (MENA) have engaged into crisis that started decades ago, and has become worse over time [8]. Yemen is one of the countries in MENA region that faced intermittent conflict since 2011, with 60% of people needing humanitarian assistance (by the end of 2014) due to poverty, underdevelopment, and environmental decline [9]. By September 2015, there was 2,204 civilian deaths, and 4,711 civilian injuries due to armed conflicts in March 2015 [10]. The conflict results in displacement of people due to collapse of social networks and institutions, exposing them to certain diseases including HIV, with no access to HIV services [11].

In Yemen, the number of new HIV cases reported in 2011 and 2012 was lesser comparing to the incidence in the previous years. This indicates that notifications of new HIV cases were affected by unstable political situation and conflicts in the country during these years [12, 13].

On the other hand, till the end of 2012, the cumulative number of PLHIV who continued receiving HIV treatment and care services in Yemen was 1,339, of them 721 were taking ART. Nevertheless, the number of LTFU is still increas-

ing [14]. Therefore, the aim of this study is to examine demographic data of PLHIV who were enrolled in HIV treatment and care services from 2007 to 2012 and were LTFU, in order to develop rapid and effective interventions to improve access to HIV treatment and care services in Yemen.

Material and methods

The methodology is based on a retrospective descriptive study of health service data, and literature review focused mainly on demographic data for PLHIV who were LTFU for the period 2007-2012, as a baseline for future study. The study population corresponds to a group of 1,586 patients registered at pre-antiretroviral period (pre-ART) and ART period at HIV treatment and care sites in five main governorates (Sana'a, Aden, Taiz, Hodeida, and Mukalla) since 2007 till December 2012. Of them, 995 were eligible to ART, with exclusion of 170 transfer cases and 250 deaths.

Specific forms were designed to collect data. One form was designed for pre-ART patients that was registered at HIV treatment and care clinics and were not eligible for ART, while the other form was for ART registered cases. Data analysis was done by using excel sheet.

Results

Data on lost to follow-up in pre-antiretroviral period

The cumulative number of PLHIV who were enrolled in HIV treatment and care since the start of services in 2007 till the end of 2012 was 1,586; from this number, 305 patients were LTFU in pre-ART period (90% Yemenis, 65% males). The year of 2011 obviously showed more LTFU in care as shown in Table 1.

In addition, most of LTFU in care were among married (59%) and males (65%), and they were mostly from governorates where HIV treatment and care services exist (Figure 1). Also, the high percentage of LTFU among females in Taiz, Sana'a, and Aden as shown in Figure 1, should be taken into consideration. Moreover, 71% of PLHIV who were LTFU in care were among the age group of 25-49 years.

Table 1. Lost to follow-up by year

Year	Males (%)	Females (%)
2007	13	5
2008	8	1
2009	8	4
2010	10	6
2011	17	12
2012	8	7

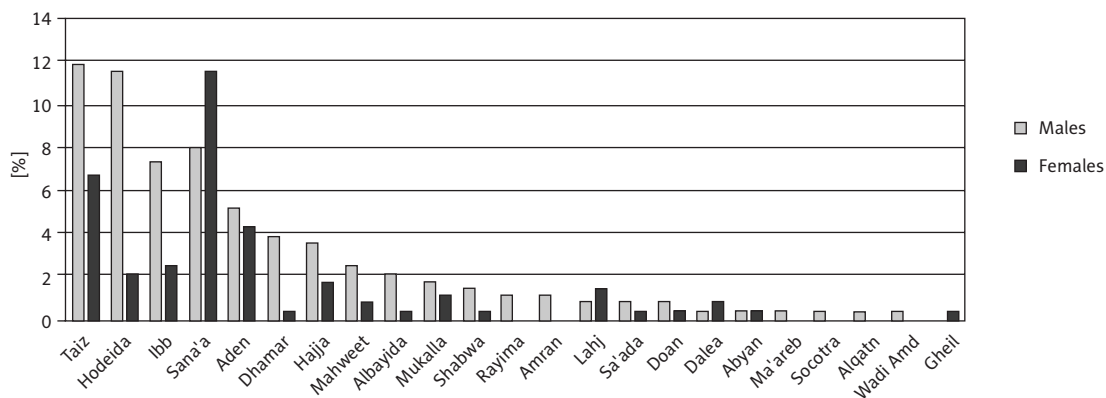


Figure 1. Patients lost to follow-up prior to initiating of an antiretroviral therapy as per a governorate

Data on lost to follow-up in antiretroviral period

Since the start of HIV treatment and care services in 2007 till the end of 2012, the cumulative number of PLHIV under ART was 995, of them 145 were LTFU (81% Yemenis, 68% males).

The number of PLHIV who were LTFU in ART was higher in 2011 and 2012, comparing with the previous years as shown in Figure 2.

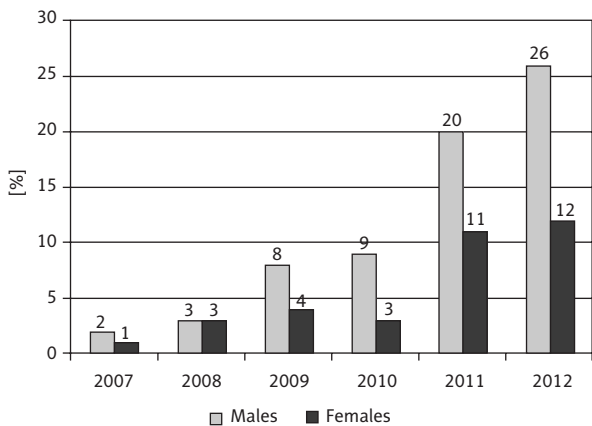


Figure 2. Patients lost to follow-up during an antiretroviral therapy by year

The LTFU on treatment were prominent among married and unmarried males as shown in Figure 3. Also, LTFU patients were mostly from governorates where HIV treatment and care sites exist, and there was high percentage of LTFU among females in Aden and Sana'a (Figure 4). The age group 25-49 year still showed higher percentage of LTFU (Figure 5). Moreover, the assessment pointed out that most of LTFU for PLHIV who were enrolled in treatment period were between the first six months to the first 3 years as shown in Table 2.

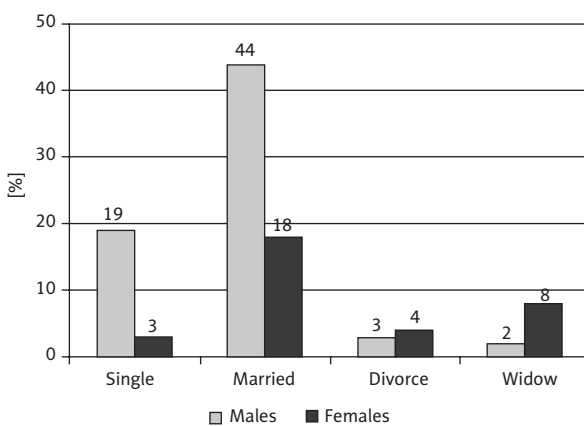


Figure 3. Marital status of patients on antiretroviral therapy that are lost to follow-up

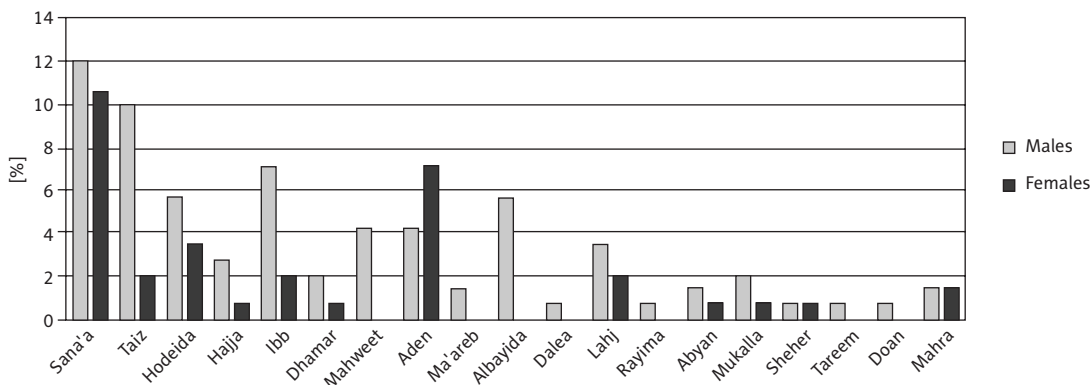


Figure 4. Patients lost to follow-up during an antiretroviral therapy as per a governorate

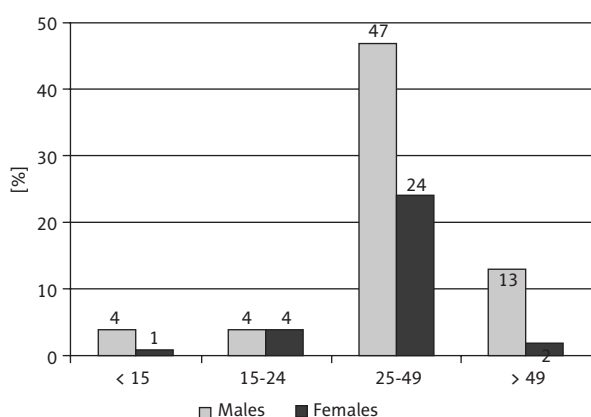


Figure 5. Patients lost to follow-up during an antiretroviral therapy by age group

Discussion

There are many PLHIV who still do not know their HIV status. PLHIV are LTFU in the period between HIV diagnosis and initiation of ART. It is recognized that most of LTFU of PLHIV in care, especially in the pre-ART period, is a major cause of poor HIV care program performance, and leads to increased morbidity and mortality. LTFU in the pre-ART period is likely because of the lack of structure and services provided for PLHIV in this 'waiting period', apart from opportunistic infection screening and prevention. Usually, the focus is on LTFU of PLHIV who are under ART, but there is no clear definition for PLHIV who LTFU at pre-ART [15]. While LTFU in ART period is define as an interval of 90 days or more, where PLHIV have missed their appointments at the ART clinic after last visit, as explained in WHO global consultative meeting report on retention in HIV care [16].

Limited HIV treatment and care services in Yemen as well as stigma and discrimination have played a role in increasing number of PLHIV who were LTFU, since the start of services [5]. The limited HIV treatment and care services to only five hospitals in five main governorates (out of 22) have hindered PLHIV access the services [7]. In addition, conflicts started mainly in main governorates in Yemen, where HIV care sites exist and experienced high number of LTFU, comparing with other governorates. However, PLHIV who are living in other governorates that have not been in conflicts, they have not been able to access HIV care services in conflict-affected governorates [7, 17].

This study has shown significant levels of LTFU patients in the pre-ART and ART periods. But most of the LTFU's were in 2011 and 2012. This might be associated with insecurity and unstable political and economic situations in the Country, where Yemen was among the countries involved in the Arab Spring revolutions [18]. Similarly, the civil war in South Sudan affected HIV care services and led to an increased number of LTFU among PLHIV [19].

Table 2. Relation between lost to follow-up and duration of enrolment in HIV treatment

Follow-up period	Percentage (%)
Less than 6 months	28
6 months to 1 year	35
1 year to 3 years	32
More than 3 years	5

The study reported that married and unmarried young males have higher incidence of LTFU. In contrast, the study from Asia-Pacific region and case control study conducted in Ethiopia has examined the socio-demographic and clinical factors associated with LTFU during the pre-ART period, and found that young males gender and being unmarried are associated with increased pre-ART LTFU [15, 19]. Although, the LTFU rates among males was higher than females, governorates of Sana'a, Aden, and Taiz experienced highest percentage of LTFU patients in treatment and care among females, as shown in this study. This might be due to socio-cultural factors that prevent women to disclose her HIV status, and to access treatment and care services. It could also be due to political instability in those cities, since 2011, which affected females, and their access to HIV treatment and care sites [12]. Similar observation has been reported in a study conducted in Tanzania, where a large proportion of LTFU was among women [21].

LTFU frequently occurred among PLHIV who had shorter history of HIV infection [20]. In Tanzania, the LTFU occurred earlier after initiation of ART [21], which corresponds to findings in Yemen. This might be due to improper counseling given to the PLHIV at the start of ART and during each visit. Also, political conflicts led to forced displacement of population, which resulted in inability to receive good counselling. This defer adherence to treatment and may increase drug resistance [22].

The study recommends to conduct in-depth study to recognize the factors behind LTFU of PLHIV in Yemen. Also, it is important for National AIDS Control Program together with ART coordinators at governorates level to improve patients tracking system and consistent counselling. It is also recommended to develop a contingency plan that aims to overcome challenges, and improve access to HIV treatment and care services in Yemen during unstable political situations.

Conclusions

HIV treatment and care services are limited to only five main governorates in Yemen (out of 22) that experienced conflicts in 2011. Therefore, insecurity and political instability situations were responsible for most of LTFU cases that hindered access PLHIV to HIV treatment and care services in Yemen.

PLHIV who inhabits the areas of political conflicts, especially in Sana'a, Taiz, and Aden governorates, showed a higher number of LTFU among young male groups more than in other areas located far from conflicts. Although there were LTFU in other governorates where did not experience conflict, the restricted movement of PLHIV prevented their access to HIV treatment and care services in conflict governorates. Also, the study showed a large number of females who have lost their follow-up in conflict areas.

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Conflict of interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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