Current Status In Kediri City Towards 90-90-90 Unaided Target (A Case study of Pesantren 1 Health Center)

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Abstract

Introduction In 2016, UN Member States committed to reduce new HIV infections to fewer than 500,000 annually by 2020, a 75% reduction compared with 2010, reduce AIDS-related deaths to fewer than 500 000 globally as a means of ending AIDS by 2030. The main UNAIDS 2020 target is to ensure that 90% of the people living with HIV know their status, 90% of the people living with HIV (who know their HIV status as positive) are already on ART treatment, 90% of people on treatment are virally suppressed. The objective of the study is to determine the current situation towards the 2020 90-9-90 UNAIDS target and the factors associated with HIV viral load suppression at Pesantren 1 Health center

Method The study was a cross sectional study at Pesantren 1 Health Center in Kediri city. The researcher collected secondary data at from the January 2018 till May 2019, carried in depth interviews, then determined the percentage of HIV positive patients that did a HIV test and received their results as Positive, the percentage of HIV positive patients that started ART treatment, the percentage of HIV positive patients that have viral load suppression from the viral load tests done. The researcher used the chi square analysis to determine the significant factors that may determine viral suppression that are already on ART treatment and then applied the binary logistic regression to determine the significant factors that determine viral suppression among the HIV positive patients that are already on ART treatment.

Results The progress towards the 90-90-90 UNAIDS target was at 2.4%, 93.4%, 20.5%. The time taken by the HIV positive patient to start ART treatment from the time of confirmation of HIV positive and the time taken to take the first viral load test from the time when this patient started ART treatment were significantly influencing Viral load suppression.

Conclusion There is need to scale up HIV case-detection capacity through creating awareness about HIV, HIV testing and counselling (HTC), reducing stigma and discrimination and also need to expand of the ART services so as to achieve the 90-0-90 UNAIDS target.

Introduction

HIV still remains a major public health threat with over 35 million deaths and counting, and in 2016, there were still over two million infections (Unaid, 2016c). However HIV treatment can dramatically extend the lifespan of people living with HIV and effectively prevent HIV transmission (UNAIDS, 2014). In 2016, United Nations Member States committed to reducing new HIV infections to fewer than 500,000 annually by 2020, a 75% reduction compared with 2010, reduce AIDS-related deaths to fewer than 500 000 globally, eliminate HIV-related stigma and discrimination and ending AIDS as a public health threat by 2030 (Unaid, 2016a; WHO, 2016b). The discovery of effective treatment with antiretroviral therapy (ART) in 1996 and subsequent evidence regarding the prevention of illness, death and transmission transformed the epidemic from an unending, unmitigated disaster into something that could be prevented and even ended (Das M, Chu PL, Santos GMi, Scheer S, Vittinghoff E, 2010). One of the 2030 sustainable Development Goals (SDGs) is to achieve the 95-95-95 HIV treatment and having less than 200,000 new HIV infections (UNAIDS, 2015). However, the main 2020 target for UNAIDS is to ensure that 90% of the people living with HIV know their status, 90% of the people living with HIV (who know their HIV status as positive) are already on ART treatment, 90% of people on treatment are virally

suppressed (UNAIDS, 2017). Attaining this target would mean that, by 2020, 73% of all people living with HIV will have suppressed viral loads (UNAIDS, 2016). Data from 146 countries show that some have achieved declines in new HIV infections among adults of 50% or more over the last 10 years, while many others have not made measurable progress, and yet others have experienced worrying increases in new HIV infections (Unaid, 2016b). Asia and the Pacific is expected to experience almost 480,000 new HIV infections in 2030 if coverage remains at 2013 levels, compared to fewer than 97,000 infections under the 90-90-90 Fast-Track response (UNAIDS, 2014).

In 2015, of the 36.7 million people living with HIV globally, an estimated 60% knew their HIV status, 46% were on antiretroviral therapy, and 38% had achieved viral suppression (Unaid, 2016b). In 2015, more than 14.5 million of the 36.7 million (43%) people living with HIV do not know their HIV status. About 54% of the people living with HIV have not yet started Antiretroviral treatment and only an estimated 38% of people living with HIV worldwide are virally suppressed (Unaid, 2016b). Of late, globally, there 37.9 million people having HIV by 2018 and 23.3 million were already accessing ART treatment (62%) (UNAIDS, 2019a). In the Asia and the Pacific region, 5.9 million were estimated to be having HIV of which 3.2 million were accessing ART treatment by 2018 (UNAIDS, 2019a). In 2017, East Java (Jawa Timur) had the highest number of HIV cases in Indonesia (Kementerian Kesehatan RI, 2018b).

By 2018, about 8.1 million people did not know that they were living with HIV (UNAIDS, 2019a). In 2018, 79% of people living with HIV knew their status. Among people who knew their status, 78% were accessing treatment. And among people accessing treatment, 86% were virally suppressed. (UNAIDS, 2019a). Of all people living with HIV, 79% knew their status, 62% were accessing treatment and 53% were virally suppressed in 2018 (UNAIDS, 2019a). For the first time in 2017, the number of people living with HIV accessing treatment exceeded the number of people not yet in treatment (UNAIDS, 2019b).

Indonesia being among the thirty-five countries accounting for more than 90% of the people becoming newly infected with HIV have been designated Fast-Track countries, it requires intensive action to mitigate the epidemic (WHO, 2016b). In the Asia and the Pacific region, 5 million people were living with HIV in 2014, 90% were in six countries: China, India, Indonesia, Myanmar, Thailand and Viet Nam. Women account for a growing proportion of new HIV infections, up from 17% in 1990 to 34% in 2014 (Unaid, 2016c). China, India and Indonesia account for 78% of people newly infected with HIV in the region. These three countries, plus Pakistan and Vietnam, are among the UNAIDS FastTrack countries (Unaid, 2016c). The number of people with HIV/AIDS at the age of ≥ 15 in Indonesia was estimated and projected to reach 628,492 people in 2017, with the number of new infections as many as 46,357 people and mortality of 40,468 people (Estimation and Projection of HIV/AIDS in Indonesia for the period of 2015-2020, Ministry of Health RI) (Kementerian Kesehatan RI, 2018a). Surabaya and Jakarta are among the cities that account for 1.1 million people living with HIV (Unaid, 2016c).

The preventative effect of antiretroviral therapy has been limited because 40% of people living with HIV do not know their HIV status and 62% of people living with HIV are not virally suppressed well shy of the 90-90-90 target. In other words, nearly two thirds of people living with HIV could transmit the virus unless they are provided with prevention tools and empowered to use them (Unaid, 2016b). The likelihood of transmitting HIV from a person living with HIV who is on antiretroviral therapy (ART) and has achieved a suppressed HIV viral load in his/her blood for at least six months is extremely low (negligible) (Del Romero J, Castilla J, Hernando V, Rodríguez C, 2010; Globberman J, Gogolishvili D, 2017) (Centers for Disease Control and Prevention, 2016).

The ASEAN zero project Declaration Initiative has Indonesia as the leading country to ensure zero new HIV Infection, zero Discrimination, and zero deaths related to AIDS in all ASEAN cities 'was adopted by ASEAN Leaders at the 19th Summit on November 17, 2011 in Bali, Indonesia (Kementerian Kesehatan RI, 2015). In Asia

and the Pacific, HIV exists more in the Key populations. HIV cascade data among key populations in Indonesia show very poor rates of retention in treatment and viral suppression (Januraga PP, Reekie J, Mulyani T, Lestari BW, Iskandar S, Wisaksana R, 2018). Site and individual characteristics associated with initiating and continuing treatment suggest an urgent need to develop and implement effective interventions to support patients in achieving viral suppression among all people with HIV (Januraga PP, Reekie J, Mulyani T, Lestari BW, Iskandar S, Wisaksana R, 2018).

The continued expansion of ART and support for sustainable viral suppression will make it possible to significantly reduce transmission and eliminate HIV in the general public (Del Romero J, Castilla J, Hernando V, Rodríguez C, 2010; Arkell C, 2018; Centers for Disease Control and Prevention, 2018; Granich R, Gupta S, Wollmers M, Ruffner M, 2018). In PLHIV, viral load (expressed as HIV RNA copies/mL of blood) is a direct indicator of viral replication (Bvochora T, Satyanarayana S, Takarinda KC, Bara H, Chonzi P, Komtenza B, Clemence D, 2019). Viral load tests prevent patients being unnecessarily switched to more expensive medicines or left to continue on ineffective therapy that can lead to drug resistance and ultimately death (UNAIDS, 2016). World Health Organization (WHO) recommends viral load testing to be the preferred monitoring tool for diagnosing and confirming antiretroviral therapy failure (WHO, 2013, 2016a).

Recent studies have shown that a number of factors influence viral load suppression among HIV positive patients. Among them include age, sex, marital status, level of education, Level of employment, Entry point, Tuberculosis status, Duration on ART, ART regimen, adherence, first viral load result (Rangarajan S, Colby DJ, Le Truong G, Duc Duong B, Nguyen HH, Plui Broh T, Tran TD, Ngoc BCT, Duc Anh N, Nguyen BTH, Vu Tuyet ND, 2016; Etoori D, Ciglenecki I, Ndlangamandla M, Edwards CG, Jobanputra K, Pasipamire M, Maphalala G, Yang C, Zabsonre I, Kabore SM, Goiri J, Teck R, 2018; Bvochora T, Satyanarayana S, Takarinda KC, Bara H, Chonzi P, Komtenza B, Clemence D, 2019) (Huerga H, Van C, BF, Jihane P, Adrian B and W, Lubbe D, Linda M, David E, Tom E, 2018).

Strong adherence to antiretroviral therapy suppresses viral load to undetectable levels within people living with HIV, greatly reducing the risk of transmitting the virus to others (Das M, Chu PL, Santos GMi, Scheer S, Vittinghoff E, 2010; Saravanan *et al.*, 2016; Globberman J, Gogolishvili D, 2017). Timely initiation of treatment and sustained engagement in HIV care are important to achieving viral load suppression, which is a key marker for successful treatment (Public Health Agency of Canada, 2016) (O'Connor J, Smith C, Lampe FC, Johnson MA, Chadwick DR, Nelson M, Dunn D, Winston A, Post FA, Sabin C, 2017). Since TB is the leading cause of death among people living with AIDS, All people living with TB should have access to HIV testing and antiretroviral therapy (UNAIDS, 2019b).

As we come closer to 2020, there was need to assess the progress of Pesantren 1 health center towards the UNAIDS 90-90-90 target. The aim of the study was to analyze the progress of the UNAIDS 90-90-90 target, that 90% of the people living with HIV know their status, 90% of the people living with HIV (who know their HIV status as positive) are already on ART treatment, 90% of people on treatment are virally suppressed in Kediri city, a case study of Pesantren 1 health center. It also analyzed the factors that determine viral load suppression among HIV patients that are on care at Pesantren 1 health center.

Methods Of Study

The study was a cross sectional analytic (Quantitative) study at Pesantren 1 Health Center, Kediri city. The researcher selected Pesantren 1 Health Center from Kediri city because it has the largest number of HIV patients in Kediri city. The population of study included all HIV patients at Pesantren 1 Health center and the

HIV patients that are on ART treatment and have taken atleast one Viral load test were selected for further analysis of the factors associated with Viral load suppression at Pesantren 1 Health center.

Data collection

The researcher collected secondary data at the health center from the year 2018 till May 2019, and also carried in depth interviews on two key informants; the Health worker that works on HIV patients in the HIV unit at Pesantren 1 health center, a member of the Peer Support Group in Kediri city to determine the reasons behind the results/findings.

The researcher collected the total number of patients that have visited the number of HIV positive patients that have visited the health center, total number of patients that were referred to the HIV unit to do a HIV test, total number of patients that actually did the HIV test and received their results, total number of patients that started ART treatment, total number of patients that have at least one successful viral load test. The researcher then determined the percentage of HIV positive patients that did a HIV test and received their results as Positive, the percentage of HIV positive patients that started ART treatment, the percentage of HIV positive patients that have viral load suppression from the viral load tests done. Viral load suppression was recorded if there are less than 40 copies of the virus per ml (Arkell C, 2018). Patients that were referred to the HIV unit to take a HIV test were always first assessed by the health workers in the various units in the health center to have risk factors of a patient who might have HIV. These factors included Tuberculosis, Diarrhea, syphilis, Gonorrhea and other sexually transmitted infections (STIs).

Data analysis

The researcher analyzed the descriptive statistics of all the HIV positive patients that are on ART treatment at the health center. The demographics analyzed included; Age, sex, Marital status, level of education, Level of employment, Entry point, Tuberculosis status, Years of ART initiation, adherence, follow up status (Death, Lost, transfer out, followed up, due for follow up, active), Viral load test, Viral load result. A viral load test measures the number of HIV viral particles per millilitre of blood (UNAIDS, 2016).

The researcher analyzed using the bivariate analysis to determine the significant factors that may determine viral suppression among the HIV positive patients that are already on ART treatment. The factors analyzed include: Gender, Marital status, level of education, level of employment, risk factor, time taken to take the first load test, Tuberculosis status, time taken to start ART treatment from the time of confirmation of HIV positive, Adherence, regiment (First line, second line or third line), WHO clinical status. However in determining relationship of the independent factors to influence viral load suppression, the researcher restricted the analysis to those who had at least one viral load testing. The researcher used a Pearson chi square analysis for determining the significance of the relationship of the: Gender, Marital status, level of education, level of employment, risk factor staus, Tuberculosis status, Adherence, ART regimen (First line, second line or third line), WHO clinical status to viral load suppression, change in body weight while on ART and one way ANOVA to determine the significance of the relationship of Age, time taken to start ART treatment from the time of confirmation of HIV positive and time taken to take the first load test to achieve viral load suppression. Then, later a binary logistic regression was run for the significant variables to determine how they influence viral load suppression.

Data was analyzed in Microsoft Excel and Stata 14.2.

Results

The progress of Pesantran 1 health center towards the 90-90-90 UNAIDS target in 2020 is summarized in Table 1 and Figure 1 below.

Table 1: Towards the 90-90-90 UNAIDS Target

	2018		2019		ALL	
	N	%	N	%	N	%
Patient visited the health center	51,211		16,674		67,885	
Patients referred to the HIV Unit for HIV testing	807	1.7%	307	2.0%	1,114	1.8%
Patients tested at the HIV Unit	606	2.3%	213	2.8%	819	2.4%
Patients confirmed Positive at the HIV Unit	14		6		20	
HIV positive patients enrolled on HIV care	40		13		136	
HIV positive patients enrolled on Pre ART	5		-		9	
HIV positive patients enrolled on ART	35	87.5%	13	100%	127	93.4%
ART patients that have had a viral load test	-	-	-	-	29	22.8%
ART patients that have had suppressed VL results	-	-	-	-	26	20.5%

Figure 1 shows that 2.4% of the total number of patients that were counselled and tested from January 2018 till May 2019 were HIV positive. Of the 136 patients that are on HIV care at the health center, 93.4% have already started ART treatment. Of the 127 HIV positive patients that are on ART treatment, only 20.5% have suppressed viral loads.

Figure 1: The Progress towards 90-90-90 UNAIDS target

A univariate analysis was done on all the potential variables that could determine viral load suppression among HIV positive patients. Frequencies were determined for categorical variables (Table 1) and summary statistics were determined for the continuous variables. Out of the 136 HIV positive patients on ART treatment, only 29 patients had taken at least one viral load test of which 29 HIV patients had successful viral load results.

A bivariate analysis for the categorical variables were done using the Pearson chi square analysis and the results (Table 1) were to have no significant ($P > 0.05$) relationship to determine viral load suppression in the HIV positive patients. ANOVA results for the continuous variables (Table 2) indicated that age and body weights while on Pre ART and ART of the HIV positive patient were not significant ($P > 0.05$) to determine viral load suppression.

Table 2: Descriptive statistics of categorical independent variables and Pearson chi square relationship versus viral load suppression

Independent variables / Demographics	Frequency	Viral load suppression		Relationship	
	N (%)	Suppressed (26)	Non suppressed (3)	Pearson Chi2	P value
Marital status				1.5058	0.471
Married	31 (22.8)	5	0		
Single	93 (68.4)	17	3		
Window/Widower	12 (8.8)	4	0		
Gender				0.6971	0.404
Male	115 (84.6)	21	3		
Female	21 (15.4)	5	0		
HIV Entry point				6.409	0.171
Maternal and Child health	3 (2.2)	0	0		
Out patient	38 (27.9)	8	0		
In patient	10 (7.4)	5	0		
Key populations (MSM, IDU, sex workers)	48 (35.3)	5	2		
NGOs	21 (15.4)	6	0		
self-referral	11 (8.1)	2	1		
Others	5 (3.7)	0	0		
Level of education				0.5046	0.918
No education	1 (0.7)	0	0		
Primary (SD)	10 (7.4)	1	0		
Junior school (SMP)	20 (14.7)	1	0		
High school (SMA)	81 (59.6)	19	2		
College / University	24 (17.7)	5	1		
Employment status				0.1195	0.73
Not working	19 (14.0)	1	0		
Working	117 (86.0)	25	3		
Sexual orientation				1.5058	0.681
Heterosexual	40 (29.4)	6	0		
Homosexual	89 (65.4)	17	3		
Bisexual	4 (2.9)	1	0		
Others	3 (2.2)	2	0		
Tuberculosis (TB) status during ART				-	-
Pulmonary TB	4 (2.9)	1	0		
Extra Pulmonary TB	3 (2.2)	0	0		
Negative (No TB)	129 (94.9)	25	3		
First line ART Regimen				2.1197	0.714
TDF(300)+3TC(150)+EFV(600)	48 (37.8)	15	1		
TDF(300)+3TC(150)+NVP(200)	1 (0.8)	0	0		
TDF(300)+3TC(300)+EFV(600)	7 (5.5)	1	0		
TDF(300)+FTC(200)+EFV(600)	1 (0.8)	0	0		
TDF(300)/3TC(300)/EFV(600)	35 (27.6)	2	0		
ZDV(100)+3TC(150)+EFV(200)	1 (0.8)	0	0		
ZDV(100)+3TC(150)+NVP(200)	4 (3.2)	1	0		
ZDV(300)+3TC(150)+EFV(600)	1 (0.8)	0	0		
ZDV(300)+3TC(150)+NVP(200)	25 (19.7)	7	2		
ZDV(300)/3TC(150)+EFV(600)	1 (0.8)	0	0		

ZDV(300)/3TC(150)+NVP(200)	3 (2.4)	0	0		
Second line regimen				4.000	0.135
TDF(300)+3TC(300) + Efa (600)	1 (10.0)	1	0		
TDF(300)+3TC(150)+EFV(600)	2 (20.0)	0	1		
TDF(300)+3TC(150)+NVP(200)	4 (40.0)	2	0		
TDF(300)+3TC(300)+EFV(600)	2 (20.0)	0	0		
ZDV(300)+3tC(150)+EFV(600)	1 (10.0)	0	0		
WHO clinical status at the start of ART				0.1787	0.915
Asymptotic	63 (49.6)	12	1		
Mild symptoms	34 (26.8)	7	1		
Moderate symptoms	25 (19.7)	7	1		
AIDS	5 (3.9)	0	0		
Adherence				-	-
>95%	83 (61.0)	7	3		
Not assessed	53 (39.0)	-	-		
Change in Body weight while on ART				3.1231	0.21
No change in body weight	10 (34.5)	10	0		
Decrease in body weight	4 (13.8)	4	0		
Increase in body weight	15 (51.7)	12	3		

However the time taken by the HIV positive patient to start ART treatment from the time of confirmation of HIV positive and the time taken by the HIV positive patient to take the first viral load test from the time when this patient started ART treatment were found to significantly ($P<0.05$) influence the viral load suppression in the HIV positive patients. All levels of significance were compared at 95%.

Table 3: summary statistics for continuous variables and ANOVA results of their relationship versus viral load suppression

Independent variables / Demographics		Age at first visit (Years)	Body weight at Pre ART (Kg)	Body weight at start of Art (Kg)	Current body weight (Kg)	Time taken to start ART (days)	Time taken to do a VL test (Months)
Number of observations		29	29	29	29	29	29
Summary statistics	Mean	30	61.8	61.1	63.0	45	24
	Median	29	60	59	64	13	17
	Smallest	20	38	42	40	0	12
	largest	47	42	107	100	771	84
Means of Viral Load suppression	Suppressed	31	97.0	61.8	63.5	49	25
	Non suppressed	27	54.3	55.7	58.7	11	15
Bartlett's test for equal variances (Chi2)		0.1869	2.8106	2.3649	2.1828	7.991	6.5829
Prob > chi2		0.666	0.094	0.124	0.140	0.005	0.010

A binary logistic regression analysis was done to determine how the time taken by the HIV positive patient to start ART treatment from the time of confirmation of HIV positive and the time taken by the HIV positive patient to take the first viral load test from the time when this patient started ART treatment were influencing viral load suppression in HIV positive patients.

Table 4: Binary logistic regression results

Viral Load suppression	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
Time to start ART (days)	0.974	0.046	-0.56	0.573	0.887	1.069
Time to do a VL test (months)	0.852	0.158	-0.87	0.385	0.592	1.224
Constant	2.914	8.838	0.35	0.724	0.008	1112.301

The results showed that the more the time taken by the HIV positive patient to start ART treatment from the time of confirmation of HIV positive, the less likely (Odds ratio = 0.974, < 1) the HIV positive patient is likely to have a viral load suppression. They also showed that the more the time taken by the HIV positive patient to take the first viral load test from the time when this patient started ART treatment, the less likely (Odds ratio = 0.852, < 1) the HIV positive patient is likely to have a viral load suppression.

Discussion

There are several factors associated with achieving each of the 90-90-90 targets. Reaching the first target will require efforts to increase the uptake of HIV testing by addressing issues such as tapping much into HIV testing of Key populations, risk perception, accessibility of services, community knowledge and awareness. The health workers only refer a few selected patient that visit the health center for HIV counselling and testing. A patient is referred to have a HIV test if he has signs of Tuberculosis, Diarrhea, Hepatitis, Oral vaginal candidiasis, dermatitis, herpes, toxoplasmosis, wasting syndrome, Pneumocystis Carinii Pneumonia, Leukocytogenic Leukocytogenesis Vasculitis and other sexually transmitted infections such as Syphilis, Gonorrhea, among others. This has limited the number of patients likely have HIV to be tested hence having a percentage that far away from the 90% target at just only 2.4% HIV positive patients. Globally, forty per cent of people living with HIV (19 million) are not aware of their HIV-positive status and therefore HIV testing HIV should be encouraged and supported through self-testing and community-based testing so as to reach people in diverse settings outside health facilities, especially key populations and men (WHO, 2016b). The estimate of the second 90-90-90 target is the highest of the three targets. This mainly attributed to the WHO recommendation of Test and Treat approach in that ART should be initiated in all people living with HIV (HIV exposed infants less than 10 years, adolescents between 10 to 19 years, adults above 19 years and pregnant women living with HIV) regardless of their WHO clinical stage and CD4 count (WHO, 2016a), proper administration of ART therapy through the 4S (Start, Substitute, Switch and STOP) ART medicine being free and it takes much ease for both the health center and patients to easily coordinate and start ART treatment. Shifts toward earlier initiation of treatment, simplified and more tolerable regimens, and adherence support interventions like a peer support group have influenced initiation and uptake of ART treatment. This largely contributed to the surpassing the second 90-90-90 target to 93.4%. However nationally, ART treatment of HIV patients is still very low. For example in 2016, only 32.1% (69,954 of the 217,631 HIV patients) were receiving still receiving ART therapy (Kementerian Kesehatan RI, 2016). On starting treatment, many patients remain engaged in HIV care and have follow-up services to monitor the effectiveness of the treatment. However less have taken a viral load test since their initiation on ART treatment. This has been attributed to the fact that viral load testing is not free at this health center. This largely explains why the estimate of the third 90-90-90 target is very low, same as the whole country at large. The cost and complexity of ART treatment and Viral Load testing technologies also limit their availability. Same case in Indonesia, viral load tests in a few selected central laboratories (UNAIDS, 2016). I also explains more why no patient has more than one viral load result The nearest viral load testing place is located in Surabaya at DR. Soetomo Hospital which is far away from Kediri city making it more costly to do the viral load test. It may also be attributed to the fact that most HIV patients feel healthy and do not feel like doing a viral load test as reported by one of the members of the peer support group in this region. Achieving the 2020 UNAIDS 90-90-90 targets will require a viral load-informed care to ensure optimal HIV clinical follow-up, adherence and resistance monitoring (Bain LE, Nkoke C, 2017). However as earlier noted in earlier studies, data on viral load suppression is not readily available in most provinces in Indonesia making it hard to assess the progress of ART treatment (Ministry of Health Republic Indonesia, 2017). According to (Granich R, Gupta S, Wollmers M, Ruffner M, 2018), an increase in the number of people diagnosed and placed on treatment will normalize HIV epidemic and also encourage others to seek testing and treatment hence achieving the UNAIDS 90-90-90 target. As suggested by (Paudel T, Singh N, Banjara MR, Kafle SP, Ghimire YC, 2016), there is need to scale up HIV case-detection

capacity through creating awareness about HIV, HIV testing and counselling (HTC), reducing stigma and discrimination and also need to expand of the ART services so as to achieve the 90-0-90 UNAIDS target.

On analyzing the factors that determine viral load suppression among HIV positive patients that are already on ART treatment and have at least taken one viral load test, the time taken by the HIV positive patient to start ART treatment from the time of confirmation being HIV positive and the time taken by the HIV positive patient to take the first viral load test from the time when this patient started ART treatment were found to significantly influence viral load suppression in HIV positive patients.

The time taken by the HIV positive patient to start ART treatment from the time of confirmation being HIV positive and the time taken by the HIV positive patient to take the first viral load test from the time when this patient started ART treatment was found to significantly influence viral load suppression in HIV positive patients and was consistent with previous studies like (Hoenigl M, Chaillon A, Moore D, Morris SR, Mehta SR, Gianella S, Amico KR, 2016). We observed that the average time of time taken to start ART treatment from the time of confirmation of HIV positive status was 45 days (one and a half months). WHO recommends immediate initiation (Test and Treat) of all confirmed HIV positive patients on ART treatment (WHO, 2015b, 2016a). The earlier the better. Early initiation to ART treatment after confirmation of HIV positive improves morbidity and mortality in all stages of HIV infection (Sellers CJ, 2014; Batavia AS, Secours R, Espinosa P, Juste MAJ, Severe P, Pape JW, 2016; Hoenigl M, Chaillon A, 2016; Centers for Disease Control and Prevention, 2018). Early initiation to ART treatment reduces HIV transmission since it reduces the plasma HIV levels (Donnell D, Baeten JM, Kiarie J, Thomas KK, Stevens W, Cohen CR, McIntyre J, Lingappa JR, 2010).

The time taken by the HIV positive patient to take the first viral load test from the time when this patient started ART treatment was found to significantly influence viral load suppression in HIV positive patients. We observed the patients on ART treatment and have at least one viral load test took an average of 24 months to their first viral load test. WHO recommends viral load monitoring 6 months after initiating antiretroviral therapy and thereafter 12 months annually for people who are virally suppressed (WHO, 2015a, 2016a). There is need to scale up Viral load testing to assess regimen response as a way to improve the substitution, switching to second and third regimens or no change in ART regimen (Awungafa G, Amin ET, Fualetac A, Takah NF, Agyingi LA, Nwobegahay J, Ondoa P, 2018). In people for whom viral load tests suggest treatment failure, WHO recommends enhanced adherence counselling, followed by an additional viral load test to establish re-suppression or to confirm treatment failure and a switch to an alternative regimen (WHO, 2015a). This all sums up the need to do timely viral load testing so as to determine the treatment response, alternative treatment options.

It is also important to note that only 10 out of the 29 patients were assessed for adherence of which 7 patients had viral load suppression, only one patient out of four was on ART had Tuberculosis (Pulmonary TB) and was virally suppressed.

However, social conditions related to poverty, limited viral load testing points, lack of access to support services can decrease the degree to which individuals remain engaged in care. Issues related to privacy and stigma may also impede access to and retention in care. Therefore, it is critical to continue to work towards creating supportive environments that address social determinants, decrease stigma and discrimination, and reduce barriers to prevention, treatment, care and support. It is still worrying that achieving the 90 90 90 by 2020 targets will still leave 27% of people living with HIV with unsuppressed viral loads in 2020, so expanded

investments in proven HIV prevention strategies will be critical to hopes for ending the AIDS epidemic (UNAIDS, 2014).

The major strength of this study was that it was the first study to determine progress towards the 2020 90-90-90 UNAIDS target and also conclude that the time taken by the HIV positive patient to start ART treatment from the time of confirmation of HIV positive and the time taken by the HIV positive patient to take the first viral load test from the time when this patient started ART treatment were significant factors to influence viral load suppression among HIV positive patients. The other strength was use of routine programme data that is always updated over time with information collected about all patients who were on ART at this health center without any exclusion. We collected data from the main e-database called System Informasi HIV AIDS (SIHA) which is the first/ primary source of information on all HIV patients used across all the health centers and hospitals in Indonesia. These primary records are routinely audited by the Ministry of Health (Dinas Kesehatan) for its accuracy and consistency. Therefore, we strongly believe that the data collected in our study reflects what is happening in reality at this health center.

The main challenge / limitation in the study was that it was difficult to determine the total number of patients that had ever visited the hospital, the total number of patients that have ever been referred to the HIV unit to HIV counseling and testing , the total number of patients that have ever tested for HIV at the HIV unit. The other limitation was that the study methodology involved analysis of only secondary data of patient records in the SIHA database, and hence our analysis and interpretation of the data are limited to only those variables that are routinely collected from patients/care givers and captured in the patient records. Some of the important variables like height Medium Upper Arm circumference (MUAC) of the patient, HIV status of the other serodiscordant couples and so on, which could have played a major role in determining how other factors like Body Mass Index, Malnutrition influence viral load suppression in the HIV patients.

Conclusions

Pesentran 1 Health center is still far below the first and third 90 targets though outperforming the second 90 target. The most important target still remains the first target where the health center should identify all the possible people living with HIV mostly the key populations, have them tested for HIV and HIV positive patients should immediately start on ART treatment as treatment is monitored through vira load testing and doing follow ups for the lost patients. The fact that the time taken by the HIV positive patient to start ART treatment from the time of confirmation being HIV positive and the time taken by the HIV positive patient to take the first viral load test from the time when this patient started ART treatment were found to significantly influence viral load suppression in HIV positive patients, the HIV Unit at Pesentran 1 health center should observe the recommended WHO and UNAIDS guidelines for HIV treatment so as to meet the 2020 90-90-90 UNAIDS target as well as the 2030 95-95-95 SDG target.

Declarations

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Ethical issues

Ethical clearance and permission for the study was obtained from East Java Political and National Unity Agency (Bakesbangpol), Ministry of Health Kediri city in collaboration with Faculty of Public Health Universitas Airlangga.

Conflict of Interest

We declare no conflict of interest

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Figures

Figure 1: The Progress towards 90-90-90 UNAIDS target

Figure 1

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