



## ORIGINAL RESEARCH ARTICLE

### TREATMENT ADHERENCE OF ANTIRETROVIRAL THERAPY AMONG PEOPLE LIVING WITH HIV/AIDS

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#### ABSTRACT

Adherence to Antiretroviral therapy (ART) is a principle predictor for the success of Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome treatment. Highly Active Antiretroviral Therapy (HAART) has led to the reduction of mortality and the improvement of the quality of people living with HIV/AIDS. It has been estimated that at least 95% adherence with therapy is required to reduce HIV viral load. Non-adherence to treatment can lead to inadequate suppression of viral replication, continued destruction of CD4 cells, progressive decline in immune function and disease progression. The aim of the study is to assess treatment adherence of antiretroviral therapy among people living with HIV/AIDS at Seti Zonal Hospital, Kailali. A descriptive cross-sectional study was conducted among 160 people living with HIV/AIDS in ART Clinic, Seti Zonal Hospital, Kailali. Non-probability purposive sampling technique was used for data collection between 22/03/2017 to 02/04/2017. Informed consent was obtained prior collecting data from self-structured questionnaire using interview technique. Collected data were entered and analyzed by SPSS 17.0 and represented by using percentage, frequency, mean, standard deviation and chi-square test. Results: Among the respondents majority of them were "female" 85 (53.1%) sex, from age group "31-45 years" 85 (53.1%), ethnicity "minority group/ Dalit" 76 (47.5%) and education "illiterate" 79 (50.3%). The mean adherence rate for one month was found to be 89.92%. Majority of the respondents were adherent to ART 96 (60%). Regarding non-adherence the major barrier was "forgetting" 52 (45.6%). There is statistically significant association between age of the respondents ( $p=0.04$ ), ethnicity ( $p=0.03$ ) and prescribed ARV regimen ( $p=0.02$ ) with drug adherence. More than half of the respondents were adherent to ART. Among non-adherent, the most of them reported "forgetting to take drug". Non adherence patient and family members can be addressed with proper counseling and motivation for their drug compliance.

**Key words:** Antiretroviral therapy, HIV/AIDS, Treatment adherence, PLHA

#### INTRODUCTION

The human immunodeficiency virus (HIV) is a retrovirus that infects cells of the immune system, destroying or impairing their function. The most advanced stage of HIV infection is acquired immunodeficiency syndrome (AIDS). It can take 10-15 years for an HIV-infected person to develop AIDS; antiretroviral drugs can slow down the process even further. HIV is transmitted through unprotected sexual intercourse (anal or vaginal), transfusion of contaminated blood, sharing of contaminated needles, and between a mother and her infant during pregnancy, childbirth and breastfeeding.<sup>1</sup>

A retrovirus belongs to the family Retroviridae and possesses ribonucleic acid (RNA)- dependent

deoxyribonucleic acid (DNA) polymerases i.e. reverse transcriptase. HIV infects T helper cells (T4 lymphocytes), macrophages and B cells.<sup>2</sup>

In South and South East Asia, there are approximately 4 million people living with HIV [National Antiretroviral Therapy Guidelines].<sup>3</sup> In Nepal, the first case of HIV was diagnosed in 1988. It is estimated that there are approximately 50,200 people living with HIV (PLWHA) in Nepal, with an estimated 4,906 deaths in 2010.<sup>3,4</sup>

Antiretroviral therapy (ART) standard treatment consists of a combination of at least three drugs that suppress HIV replication.<sup>1</sup> Treatment adherence is, "the extent to which a person's behaviour – taking

medications, following a diet and/or executing lifestyle changes – corresponds with agreed recommendations from a health care provider.”<sup>1</sup>

## METHODS

The descriptive cross sectional study was commenced on 160 people living with HIV/AIDS of any age and sex attending ART Centre, Seti Zonal Hospital, Dhangadhi, Kailali, Nepal; the second biggest ART center in Nepal. The participants taking ART for one month or more were included in the study. The reliability and validity of the research tool was maintained by pre-testing on 10% of the sample size i.e. 16 patients ART Centre, Mahakali Zonal Hospital, Kanchanpur. The content validity of the instrument was maintained by reviewing the extensive literature and consultation with content expert. With prevalence (p=84%)<sup>5</sup>, the sample size was calculated and non probability sampling technique was used to collect data from structured close ended questionnaire. Face to face interview technique was employed from 2014/07/6 to 2014/08/19 with 13-14 interviews per day. The informed consent was obtained prior data collection. The confidentiality and privacy was maintained throughout the study as patient's name was not included in the questionnaire. Data was edited, entered and analyzed in Statistical Package for Social Sciences (SPSS) version 17.0 and descriptive as well as inferential statistics (chi-square and Fisher exact test) were used for data analysis.

## RESULTS

Regarding the demographic characteristics of the participants, majority people sex was female 53.1%, age group 31-45 years 53.1%, ethnicity Dalit (minority group) 47.5%, educational status illiterate 50.3%, occupation housewife 45.8%, positive family history 78.1% and family history of ART use 78.4%. Among the participants undergoing ART treatment, the mostly prescribed regimen was AZT/3TC/NVP which is 44.4% and most commonly felt side effects of ART were anemia 39.6% followed by headache 16.5% and dizziness and lipodystrophy 11.0% each. In the case of such side effect experience, patient usually changed the given ART regimen 75%. Majority of participants were prescribed two drugs per day 85.6% and the mean pills missed within a month period was 71.2%. While asked about the reason to miss the ART, the most commonly answered statement was “Forgot to take pills” 45.6%

followed by “Away from home” 25.4% and “Did not want others to see” 15.8%.

Regarding the patients' drug adherence, the drug adherence rate was calculated using the standard formula i.e. number of pill taken per month divided by number of pill to be taken which is multiplied by hundred. In this study, the patients' mean drug adherence of one month was 89.92% (see Table 2 for details).

There is a significant relationship between the participants' drug adherence and age group (p=0.04), ethnicity (p=0.03), duration of HIV diagnosis (p=0.05) and prescribed ARV regimen (p=0.02) see Table 3 and 4.

## DISCUSSION

The mean age was 34 years with the standard deviation of 11. Majority of respondents 85 (53.1%) belongs to age group 31-45 years which is similar to other study conducted at Kathmandu by Sharma.<sup>6</sup> Majority of respondents 85 (53.1%) were female as contrast to this study conducted in West Bengal India.<sup>7</sup> This might be due to the reason that husband travel abroad (India) for income generation and housewife remain at home in Nepal and undergo treatment. Among ethnicity, majority were Dalit 76 (47.5%) followed by Chhetri 55 (34.4%), Brahmin 20 (12.5%) and Janjati 9 (5.6%). Majority of respondents 79 (50.3%) were illiterate and due to lack of knowledge and awareness they are the most vulnerable group for transmitting and acquiring HIV/AIDS. Contradictory findings are presented in the study done by Sharma.<sup>6</sup> Out of literate respondents majority 28 (35.9%) were primary level similar to study done at West Ethiopia by Ejigu.<sup>8</sup>

Majority of respondents 155 (98.9%) were employed and similar finding is present in India.<sup>[7]</sup> Out of employed respondents majority 71 (45.8%) were housewife, similar to the study done at West Ethiopia by Ejigu.<sup>8</sup> Majority of the respondents 125 (78.1%) have family history of HIV and have family history of ART 98 (78.4%), as contradictory findings are reported in West Bengal, India.<sup>7</sup>

Majority of the respondents 53 (33.1%) were diagnosed HIV for more than 6 years back followed by 44 (27.5%) before 4-6 years, 38 (23.8%) before 2-4 years and 25 (15.6%) before 2 years whereas findings are in contrast as reported by Bam.<sup>5</sup> Majority of the

respondents 71 (44.1%) receive combined ART regimen of Zidovudine, Lamivudine and Nevirapine (AZT/3TC/NVP) similar to the study reported by Saha.<sup>7</sup> Respondents report main reason of missing ARV drug is “forget to take” 52 (45.6%) similar to the study conducted by Saha.<sup>7</sup> The other reasons of missing ARV were 29 (25.4%) away from home, 18 (15.8%) did not want others to see (see Table 1 for details). Majority of the respondents were adherent to ART 96 (60%) similar to the study conducted by Saha in West Bengal, India.<sup>7</sup> The overall adherence rate for one month was found to be 89.92% (see Table 2 for details). Result revealed a high level of adherence among PLWHA, as compared to similar study (84%) conducted in four ART centers of far western Nepal during mid 2009.<sup>5</sup>

In the present study, PLWHA age group 31-45 years was relatively “more adherent” to ART than age group 1-15. Similar findings of poorer adherence in younger age groups, especially those aged <35 years, have been reported in other studies.<sup>7</sup> Similar to other studies sex, educational status, occupation were not affecting adherence to ART.<sup>5,7</sup> Age and ethnicity are significantly associated with drug adherence. Family history of HIV and Family History of ART are not associated to drug adherence as contrast to study conducted by Saha.<sup>7</sup> There is statistically significance relationship between prescribed ARV regimen and drug adherence ( $p=0.02$ ) which is similar to the study conducted by Saha.<sup>7</sup>

#### CONCLUSION

More than two third PLHA had missed the ARV drug and more than half of them reported they forgot to take ARV pills. More than one third of PLHA were non-adherent to ART. People’s age, ethnicity and prescribed ARV regimen are associated with the PLHA drug adherence. The dalit or minority group ethnicity and age group of 16 to 45 people from Seti region of Nepal should be targeted in the for further counseling to enhance drug adherence recommended by WHO.

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**TABLE 1**  
Treatment Regimen and Side Effects

Variables	Frequency	Percentage
Prescribed ARV Regimen (n=160)		
AZT/3TC/NVP	71	44.4
AZT/3TC/EFV	41	25.6
TdF/3TC/EFV	19	11.9
TdF/3TC/NVP	23	14.4
Others	6	3.8
Side effects of ART (n=67)		
Anaemia	36	39.6
Tiredness	7	7.7
Dizziness	10	11.0
Skin rashes	6	6.6
Lipodistrophy	10	11.0
Headache	15	16.5
Others	7	7.7
Reaction on drug side effects (n=67)		
Continue same treatment	17	25.0
Regimen change	51	75.0

AZT: Zidovudine, 3TC: Lamivudine, NVP: Nevirapine, EFV: Efavirenz, ABC: Abacavir, TdF: Tenofovir disoproxil fumarate, d4T: Stavudine.

**TABLE 2: Drug Adherence (n=160)**

Variables	Frequency	Percentage
Taking ART drugs		
Takes on time (everyday)	149	93.1
Doesn't take on time	11	6.9
Use of ART in front of others		
Worried	32	20.0
Not worried	128	80.0
Drug adherence		
Adherent	96	60.0
Non adherent	64	40.0

**TABLE 3: ASSOCIATION BETWEEN DRUG ADHERENCE AND SOCIODEMOGRAPHIC VARIABLES**

Variables	Frequency		x <sup>2</sup> / Fisher exact test p value
	Adherence (n=94)	Non adherence (n=64)	
<b>Age in years</b>			0.04
1-15	6	7	
16-30	27	13	
31-45	55	30	
46-60	8	14	
<b>Sex</b>			0.51
Male	43	32	
Female	53	32	
<b>Ethnicity</b>			0.03*
Brahman	9	11	
Chhetri	34	21	
Dalit	51	25	
Janjati	2	7	
<b>Educational status</b>			0.17
Illiterate	43	35	
Literate	52	27	
<b>Occupation</b>			0.35
Self employed	10	11	
Service	3	0	
Student	5	5	
Labor	30	20	
Housewife	46	25	
<b>Family history of HIV</b>			0.43
Yes	77	48	
No	19	16	
<b>Family history of ART</b>			0.86
Yes	60	38	
No	17	10	

\* Fisher exact test

**TABLE 4: ASSOCIATION BETWEEN DRUG ADHERENCE AND DIFFERENT VARIABLES**

Variable	Frequency		x <sup>2</sup> / Fisher exact test p value
	Adherence (n=94)	Non adherence (n=64)	
<b>Duration of HIV diagnosis</b>			0.05
< 2 years	11	14	
2-4 years	26	12	
4-6 years	22	22	
>6 years	37	16	

<b>Duration of starting of ART</b>			0.53
< 2 years	28	21	
2-4 years	25	15	
4-6 years	22	19	
6-8 years	21	9	
<b>Prescribed ARV Regimen (n=160)</b>			
AZT/3TC/NVP	45	26	0.02*
AZT/3TC/EFV	25	16	
TdF/3TC/EFV	6	13	
TdF/3TC/NVP	18	5	
Others	2	4	
<b>Taking ART drugs</b>			0.97*
Takes on time (everyday)	92	57	
Doesn't take on time	4	7	
<b>Use of ART in front of others</b>			0.37
Worried	17	15	
Not worried	79	49	

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\* Fisher exact test