

Original Research Article

A study on drug adherence among HIV infected patients residing in West Godavari district, Andhra Pradesh State

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Abstract

Introduction: Human Immunodeficiency Virus (HIV) affects 40.3 million people worldwide. To make sure that HIV treatment works effectively, it is important that the drugs are taken on time i.e 100% medication adherence. If 95% medication adherence is not achieved then treatment success becomes precarious. **Objective:** To estimate the adherence levels to ART among HIV infected patients in West Godavari district, Andhra Pradesh. **Material and Methods:** A community based Analytical - Cross sectional study was conducted among the people living with HIV in West Godavari district, Andhra Pradesh. As there are four revenue divisions in West Godavari district, from each division, the list of villages/towns were taken and the villages were selected by simple random method. The HIV positive people residing in those villages/towns were identified from PHC and UHC (Health and Wellness Centers) data. The study subjects were approached. A predesigned, semi structured questionnaire was used for collecting data after pilot study. **Results:** Out of 240 study subjects, majority of them were under the age group of 39 - 48 years i.e., 35 p.c followed by 29 - 38 years i.e., 22.5 p.c. Most of them were residing in urban areas i.e., 59.2 p.c. Among the study subjects majority were males i.e., 64.2 p.c. Socio economic status, education, therapy type, regular follow-up, alcohol consumption, opportunistic Infections had statistically significant association with drug adherence. **Conclusion:** Health education and proper counseling regarding benefits and importance of adherence to antiretroviral therapy is important in improving the adherence to ART among PLHIV.

Keywords: HIV drug adherence, ART, West Godavari

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Introduction

Human Immunodeficiency Virus (HIV) affects 40.3 million people worldwide[1]. Asia has an estimated prevalence in the region of 8.3 million, with 5.2 million being in India, giving an Indian adult HIV prevalence of 0.95% [2]. Worldwide, the major route of transmission is unprotected heterosexual intercourse (>75%) [3]. Homosexual intercourse is the second commonest route of transmission. Unfortunately, 5-10% of new HIV infections, worldwide, are in children; > 90% of these are infected during pregnancy, birth or through breast feeding [4]. Combination therapies of anti-retroviral drugs (ARV) are the treatment of choice in HIV and non-adherence is the most important factor in treatment failure and development of resistance. To make sure that HIV treatment works effectively, it is important that the drugs are taken on time i.e 100% medication adherence. Non adherence results in virologic, immunologic and clinical failure, and the development of viral resistance, complicating further treatment and increasing the risk of transmission of resistant virus [5]. Valid methods to assess adherence are thus an essential component of ART programs [6]. If 95% medication adherence is not achieved then treatment success becomes precarious. Concerns about incomplete medication adherence among patients with low socio economic status have been an important consideration in expanding the access to anti-retroviral therapy [7]. A greater number who potentially have medication adherence issues and questions what facilitates medication adherence from an individual and public health perspective. In view of lack of data regarding medication adherence in this population, we have decided to study adherence to ART

issues among HIV positive population in West Godavari district, Andhra Pradesh, India.

Objectives

1. To estimate the adherence levels to ART among HIV infected patients in West Godavari district, Andhra Pradesh.
2. To know the factors influencing drug adherence among HIV infected patients.

Material and Methods

A community based, analytical cross-sectional study was conducted for a period of three months (1st October 2019 to 31st December 2019) among people living with HIV/AIDS in various revenue divisions of West Godavari District, Andhra Pradesh. Purposive sampling method was adopted for collecting data from the study subjects. Those who were willing to participate in the study among the HIV positive population during the study period were included in the study and people who were not willing to give consent and those who were terminally ill people who are difficult to communicate with were excluded from the study. Clearance from the Institutional Ethical Committee was obtained prior to the start of the study. Data collection was done by using the predesigned proforma. The proforma was translated into the regional language with experts in the particular language. Written consent was taken from the study subjects prior to the start of the study. After obtaining consent questionnaire was given. As there are four revenue divisions in West Godavari district, a sample of 60 subjects was considered from each division thus data collection was done from the estimated sample size of 240. From each division the lists of villages/towns were taken and villages were selected by simple random method in a sequence. List of HIV patients was taken from PHCs and Sub-centres which were randomly selected & then patients were approached. The data collected was entered in Microsoft Excel and data cleaning was done. After the data cleaning process the data was analysed using Trial version of SPSS 20

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Sravani et al

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statistical packages. The data obtained was presented in proportions and percentages using bar charts and pie charts, etc. Chi-square test was applied. p - Value less than 0.05 was considered as statistically significant.

Definition

Drug/Medication Adherence:The extent to which patients take medication as prescribed by their doctors. This involves actors such as getting prescriptions filled, remembering to take medications on time and understanding the directions. Scoring was given to the questions regarding drug adherence (10 questions were there). For every positive response or correct answer a score of 2 was given and for incorrect answer a score of 1 was given. Thus a total score of 20 was obtained. If someone scored 16 or more than 16 then the person had high adherence. A score less than 16 then he/she had low adherence[15,16]

Sample Size:According to the study conducted by Achappa, *et al* in South India(Karnataka) prevalence of adherence to ART among HIV patients was found to be 63.7%. This was considered to calculate the sample size[8].

Sample size calculation

Prevalence (p) = 63.7%
 Relative precision (d) =10% of p = 6.37
 $q = 100 - p = 100 - 63.7 = 36.3$
 $n = 4pq/d^2 = (4 \times 63.7 \times 36.3) / (6.37 \times 6.37) = 227.9$
 The sample size obtained was rounded of to 240.

Results

The present study consisted of 240 study subjects. Majority (69.2%) of the study population were found to be having high adherence level and only 30.8% were found to be having low adherence level based on the scoring method.(Figure-1) Among the study subjects, majority of them belong to Class- III Socio economic class i.e., 35.4 p.c followed by Class- IV i.e., 26.7 p.c (according to updated B.G. Prasad’s classification 2020) (Figure-2). Majority of them were under the age group of 39 - 48 years i.e., 35 p.c followed by 29 – 38 years i.e., 22.5 p.c. Most of them were residing in Urban areas i.e., 59.2 p.c. Among the study subjects majority of them were males i.e., 64.2 p.c. Most of them were having mild symptoms i.e., 53.3 p.c. Around 51.7 p.c of them were having CD₄ count less than 0.35 X 10⁹/L. Majority of them i.e., 60.4 p.c were having symptoms from the age of 18 – 25 years of age. About 51.7 p.c of them were having a positive family history (parents). Majority of them i.e., 27.9 p.c started ART since 2 – 5 years of onset of symptoms. Most of the study subjects i.e., 27.9 p.c were having GI disturbances as side effects. 69.2 p.c of them were showing high adherence to ART. Gender, living area (urban or rural), CD₄ count were not showing any statistical significant association (p- value >0.05). Socio economic status, education, therapy type, regular follow-up, alcohol consumption, opportunistic Infections (Table – 2) had statistically significant association with drug adherence.

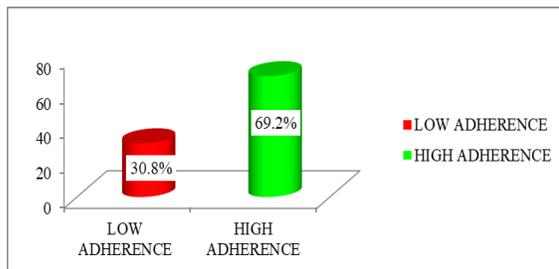


Fig 1: Showing Level of Drug Adherence to Art

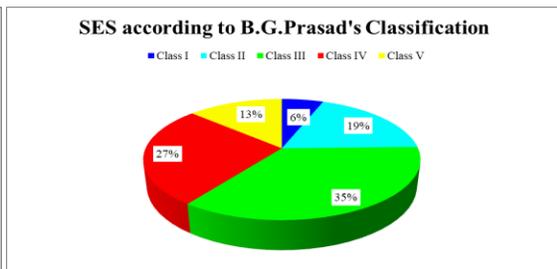


Fig 2: Showing Distribution of Study Subjects According to B.G. Prasad’s Socioeconomic Scale

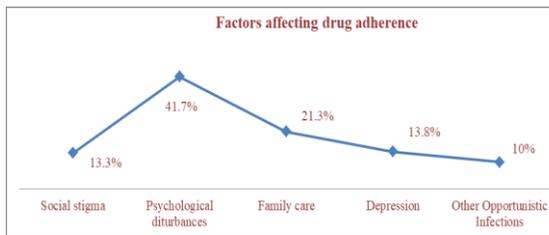


Fig 3: Showing Factors Affecting Drug Adherence in Study Subjects

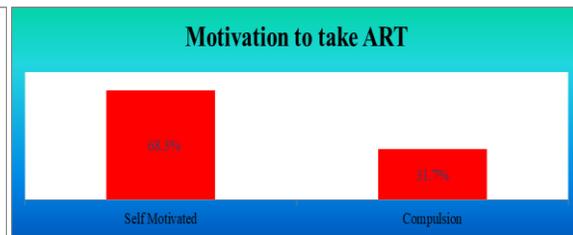


Fig 4: Showing How the Study Subjects were Motivated to Take ART

Table 2: Showing Factors Influencing Art Drug Adherence

Factors influencing adherence			
Factors	Low Adherence(N=74) (30.8 %)	High Adherence(N=166) (69.2 %)	p - Value
Socioeconomic status			
Class-I	11 (78.6)	3 (21.4)	0.001
Class- II	10 (22.2)	35 (77.8)	
Class- III	22 (25.9)	63(74)	
Class- IV	22 (34.4)	42 (65.6)	
Class- V	9 (28.1)	23 (9.6)	
Education			
Illiterate	8 (17.0)	39 (83.0)	0.006
Primary school	30 (28.0)	77 (72.0)	
Secondary school	25 (37.3)	42 (62.7)	
Graduation	11 (57.9)	8 (42.1)	
WHO Staging			
Stage - 1	18 (32.7)	37 (67.3)	0.615

Stage – 2	42 (32.3)	88 (67.7)	
Stage – 3	14 (25.5)	41 (74.5)	
Therapy type			
Monotherapy	0 (0.0)	83 (100.0)	0.000
Polytherapy	74 (47.1)	83 (52.9)	
Distance			
< 1 Hour	42 (35.9)	75 (64.1)	0.098
>1 Hour	32 (26.0)	91 (74.0)	
Regular follow up			
Yes	0 (0.0)	90 (100.0)	0.000
No	74 (49.3)	76 (50.7)	
Alcohol consumption			
Yes	60 (42.9)	80 (57.1)	0.000
No	14 (14.0)	86 (86.0)	
Opportunistic Infections			
Yes	0 (0.0)	157 (100)	0.000
No	74 (89.2)	9 (10.8)	

Discussion

The results of the present study suggest that there was good adherence to ART among people living with HIV in this area. We found out through the present study 69.2 percent of the study subject were showing high adherence to ART. This finding was similar to the study conducted by Oladele Vincent Adeniyi *et al.*[9] who reported an adherence of 69 p.c which was conducted among pregnant women Eastern Cape of South Africa. In a study conducted by Basavaprabhu Achappa *et al.*[8] the percentage of adherence was almost similar i.e., 63.7 p.c. In a study conducted by Arjun Banagi Yathiraj *et al.*[10] adherence to ART was about 70.4 p.c which was similar to our study. Better adherence in our settings could be due to the fact that all PLHIV receive free ART, regular adherence monitoring, and better literacy rate and awareness about HIV disease. Studies from India have shown that financial problems, lack of family care, substance abuse, depression, social stigma, and side effects are barriers to adherence to ART. Majority of patients (78%) report more than one barrier to ART adherence [11]. Educated people show better adherence [12]. Education may impact adherence in several ways including facilitating communication with health care providers. In our study, majority of patients who had low adherence were literate. This finding was similar to the study conducted by Bonu Naga Raju *et al.*[13]. In the present study socio-economic status of the study subjects is showing statistically significant association with drug adherence (p-value <0.05). In the present study, WHO clinical staging has got no statistical significant association with ART adherence. This finding was in contrast to the study conducted by Bonu Naga Raju *et al.*[13] where there is a very high statistically significant association between WHO clinical staging and drug adherence. In the present study distance of the ART centre from the residence of the study subjects is not showing statistically significant association with drug adherence (p-value > 0.05). This finding was in contrast to the study conducted by Bonu Naga Raju *et al.* where there is a very high statistically significant association between WHO clinical staging and drug adherence. Findings related to the Presence of opportunistic infections was similar in the present study and that of Bonu Naga Raju *et al.*[13]. Vivek Lal *et al.*[14] Alcohol consumption was associated statistically with ART drug adherence in the present study. This was similar to the study conducted by Bonu Naga Raju *et al.*[13]. Basavaprabhu Achappa *et al.*[8] Oladele Vincent Adeniyi *et al.*[9]

Conclusion

Emotional support, carrying their medication along with them and availability of medicines play an important role in maintaining high level of adherence to ART. Self motivation also lays a key role in adherence to medication in HIV positive patients. Psychosocial factors, social stigma, depression are the important factors in improving medication adherence.

Recommendations

Health education plays an important role in eliminating social stigma and psychosocial factors and improves adherence to ART. Health education through various media and posters regarding importance of ART in reducing severity will be displayed prominently in ART centers. Proper counselling of the patients and motivating them time to time will improve the adherence levels of ART.

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