

Original Research Article

Socio-demographic profile of Human Immunodeficiency Virus patients on second line antiretroviral therapy in a tertiary care centre of North-East India

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ABSTRACT

Background: HIV/ AIDS is one of the major global health issue, resulting an epidemic. Understanding the socio-demographic profile with magnitude of risky behavior might include positive messages in the routine HIV/AIDS care and treatment. Objective of this study was to find out the socio-demographic, behavioural characteristics among patients receiving second line ART (Anti-Retroviral therapy) in a tertiary centre of North-East India.

Methods: A cross sectional study was carried out among 90 PLWHA patients receiving second line ART in Regional Institute of Medical Sciences (RIMS), Imphal from March 2016 to August 2017. A predesigned and pretested schedule was used as study tool to collect required information.

Results: Majority participants (43.3%) belonged to 30-40 years age group, mean age 39.96 ± 8.021 years; 51.1% were female. Majority (58.9%) got infected with HIV through heterosexual route followed by IV drug use (31.1%). Nearly half (51.1%) were diagnosed with HIV for 11-15 years duration and majority (61.1%) were under 2nd line ART for 6-10 years duration. Here, 3.3% subjects had Hepatitis B and 7.8% were infected with hepatitis C.

Conclusions: Young population were most affected group and heterosexual route being the commonest mode of transmission. Combination of socio-demographic, behavioural risk factor and unawareness are responsible for rapid spread of HIV/AIDS. So, people need to be educated for primary and secondary prevention.

Keywords: Cross-sectional studies, Demography, Female, Heterosexuality

INTRODUCTION

Acquired immune-deficiency syndrome (AIDS) is a fatal illness caused by a retrovirus known as the human immune deficiency virus (HIV) which breaks down the body's immune system, leaving the victim vulnerable to a host of life threatening opportunistic infections, or neurological disorders, or unusual malignancies.¹ HIV and its manifestation AIDS is one of the major global health issue, which has resulted in an epidemic of

devastating proportions. The World Health Organization estimated that around 35.0 million people were living with HIV at the end of 2013; out of which 90% of the HIV infected persons live in the developing countries.²

In India, according to the National AIDS Control Organization (NACO), the estimated burden of people living with HIV/AIDS (PLWHA) for the year 2012-2013 is around 2.1 million.³ Though in India, the HIV infection has been on a steady decline from a prevalence level of

0.41% in 2001 to 0.27% in 2011; India still estimated to have the third highest number of PLWHA, after South Africa and Nigeria.³ The most common mode of HIV transmission is through unprotected sex with an infected person, which contributes about 87.4% route of HIV transmission.⁴

According to NACO State Fact, in Manipur the total no HIV infected patients are 25,370 among them 8,783 Patients are on ART.⁵ HIV/AIDS is not only a public health issue in India but one of the most serious socio-economic and developmental concerns, because nearly 89% of reported cases are occurring in sexually active and economically productive age group (15-44 yrs). Deaths of young adults have damaging impact on their families and communities.⁶ Early diagnosis, antiretroviral therapy, chemo-prophylaxis, and treatment of opportunistic infections are important for the control of HIV replication, disease progression and ultimately containment of the epidemic.⁷

Data by NACO showed the trends in various sub-groups of population at national level, but information related to other aspects of socio-demographic profile of patients for individual districts is lacking, which needs to be gather by respective States AIDS Control Societies (SACS) and analyse to develop strategies effective at local level.⁴

Understanding the socio-demographic profile with magnitude of risky behavior might include positive messages in the routine HIV/AIDS care and treatment. With the above backdrop, present study was conducted to find out the socio-demographic status, behavioural pattern among patients receiving second line ART in Anti-retroviral therapy (ART) centre of Regional Institute of Medical Sciences (RIMS), Imphal; a tertiary centre of North-East India.

METHODS

This epidemiological study was conducted in the Department of Medicine and Centre of Excellence, ART centre, Regional Institute of Medical Sciences (RIMS), Imphal from March 2016 to August 2017; among 90 PLWHA receiving second-line Anti-Retroviral therapy for more than six months, attending Medicine OPD, CoE ART Centre, RIMS and admitted in Medicine Wards. Convenience sampling was followed to avoid difficulty in obtaining a sampling frame and go for a probability sampling technique due to confidentiality issues.

Data collection was done as PLWHA fulfilling selection criteria were interviewed using a pre-designed, pre-tested, semi-structured questionnaire; after being attended by medical officer in respective corners. Socio demographic data including age, education, marital status and probable transmission route, baseline clinical parameters and comorbidities were documented. Biochemical parameters like CD4 count and plasma viral load were noted.

Data analysis

All the data collected was analysed using Statistical Package for the Social Sciences software (SPSS) version 16.0. Descriptive statistics were described about socio-demographic status, behavioural characteristics and associated morbidities. The observations were discussed in the light of previous published literature. The conclusions were made on the synthesis of social, medical and statistical angles of the observations with justified differences with the published work of previous authors. The recommendations were made after detailed study and analysis of the observations made.

Ethical approval for this study was obtained from Institutional Ethics Committee, Regional Institute of Medical Sciences, Imphal.

All participants was informed about the nature of the study and informed written consent in prescribed format was taken before administration of the questionnaire after ensuring complete anonymity and confidentiality. Each study participants was informed that the data obtained from this research would be used only for academic purpose and he/she was ensured that he/she would not suffer from any form of hardship, discrimination or stigmatization as a consequence of having participation in this research work.

RESULTS

A total of 90 study participants were included in this study. Among them majority, i.e. 43.3% belonged to 30-40 years age group, followed by 40% in 40-50 years age group and least, i.e. 2.2% were in each of 10-20 years, 20-30 years and 60-70 years. Mean age of the population was 39.96 ± 8.021 years. Out of 90 study participants 47.8% were male and 51.1% were female and only 1 (1.1%) transgender. It is also observed that most of the study population (68.9%) were Hindu, followed by 17.8% Christian and only 4.4% belonged to Buddhist community.

Among the study population 42.2% were currently married followed by 27.8% widow, 18.9% Unmarried. Least number of study population, i.e. 3.3% comprised of widower. Out of the study population 28.9% had a literacy status upto Higher Secondary and above followed by 25.6% Secondary school completion, only 2.2% were graduate. Among them 7.8% were illiterate, 5.6% non-formally literate or below primary. One-fourth (25.6%) of participants were addicted to tobacco use and 12.2% were alcoholic (Table 1).

Most of participants 53(58.9%) got infected with HIV through heterosexual route followed by 28 (31.1%) by IV drug use, least 2(2.2%) from mother to child transmission (Figure 1).

Table 1: Distribution of the study subjects according to Socio-demographic and behavioral characteristics:(n= 90).

Socio-demographic characteristics	N (%)
Age group (Years)	
10 - 20	2 (2.2)
20-30	2 (2.2)
30-40	39 (43.3)
40-50	36 (40.0)
50-60	9 (10.0)
60 - 70	2 (2.2)
Sex	
Male	43 (47.8)
Female	46 (51.1)
Transgender	1 (1.1)
Religion	
Hindu	62 (68.9)
Muslim	8 (8.9)
Buddhist	4 (4.4)
Christian	16 (17.8)
Marital status	
Unmarried	17 (18.9)
Currently Married	38 (42.2)
Divorced	7 (7.8)
Widow	25 (27.8)
Widower	3 (3.3)
Educational status	
Illiterate	7 (7.8)
NFL / Below primary	5 (5.6)
Primary School completion	10 (11.1)
Middle School completion	17 (18.9)
Secondary	23 (25.6)
Higher Secondary and above	26 (28.9)
Graduate	2 (2.2)
Tobacco Use	
Yes	23 (25.6)
No	67 (74.4)
Alcohol Use	
Yes	11 (12.2)
No	79 (87.8)

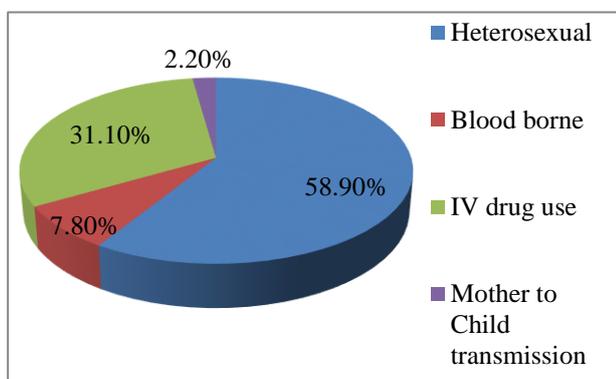


Figure 1: Distribution of study participants according to mode of HIV transmission:(n=90).

Majority (51.1%) had diagnosed with HIV for 11-15 years duration followed by 26.7% for 6-10 years duration. Only 1.1% were diagnose for 0-5 years duration. Among the 90 participants, majority (61.1%) had treated with HIV 2nd line therapy for 6-10 years duration followed by 36.7% for 0-5 years duration. Only 2.2% were diagnose for 11-15 years duration.

As co-infections of HBV, HCV and STIs in HIV positive patients which are important public health problems and share similar modes of trans-mission as HIV, hence co-existence in the same host at significantly higher rates. Here, 3.3% subjects had Hepatitis B and 7.8% were infected with hepatitis C. Only 13.04% of the female participants had H/O OCP intake (Table 2).

Table 2: Distribution of study participants according to HIV related profile: (n=90).

Characteristics	No (%)	
Duration of HIV diagnosis	0-5 years	1(1.1)
	6-10 years	24(26.7)
	11-15 years	46(51.1)
	16-20 years	19(21.1)
Duration of HIV 2nd line therapy	0-5 years	33(36.7)
	6-10 years	55(61.1)
	11-15 years	2(2.2)
Hepatitis status of HIV patients	Hepatitis B	
	Yes	3(3.3)
	No	87(96.7)
Intake of OCP* (n=46)	Hepatitis C	
	Yes	7(7.8)
	No	83(92.2)
Total	Yes	6(13.04)
	No	40(86.96)
Total		90(100.0)

(*among female participants only)

Table 3: Distribution of study participants according to CD4 count and plasma viral load: (n=90).

CD 4 count (cells/ml)	No (%)
150-250	9(10.0)
250-350	13(14.4)
350-500	24(26.7)
> 500	44(48.9)
Viral load (copies/ ml)	
< 100	61(67.7)
100- < 1000	2(2.2)
1000 - < 10,000	9(10.0)
10,000- <100,000	18(20.0)
Total	90(100.0)

Among the 90 participants, majority (48.9%) had CD 4 count > 500 cells/ml followed by 26.7% had CD4 count between 350-500 cells/ml. Only 10% were having CD 4 count 150-250 cells/ml. Among the 90 participants, majority (67.7%) had <100 copies/ ml plasma viral load

followed by 20% with plasma viral load between 104- <105 copies/ ml (Table 3).

DISCUSSION

HIV/AIDS is considered as a devastating global health problem posing severe challenges in low and middle-income countries. The individuals irrespective of their background or the people among whom they stay are subjected; pose a number of psychological stresses.⁸ The epidemic of HIV/AIDS in India is shifting from highest risk group (commercial sex workers, drug users) to bridge population (clients of sex workers, STD patients and partners of drug users) and then to general population. HIV seems to be affecting the economically productive, sexually active group and thus having a tremendous impact on the livelihood of the affected family.⁹ Present study found that majority (43.3%) belonged to 30-40 years age group, mean age of 39.96±8.021 years; similar to various studies done in different settings.¹⁰⁻¹² Another study conducted by Stein JH et al, had similar finding where slightly higher average age (42.2±7.6 years) was seen.¹³ Kumari R et al, found nearly half (48.8%) patients were in 35-49 yrs age group followed 31.7% in 25 -34 yrs.⁹ Majority (42.9%) of study subjects were in the age group of 26 - 35 years as found in Karnataka by Ramesh K.¹⁴ These findings were similar to NACO statistics that reported 86% cases in 15-44 years; this age group is more affected because they are economically productive, sexually more active and the social structure is patriarchal.³

Out of 90 study participants 47.8% were male and 51.1% were female and only 1 (1.1%) transgender; whereas more Prevalence among male than female as reported by Malhotra V et al, Kumari R et al, and Ramesh K.^{9,11,14}

Majority of the present study population (68.9%) were Hindu similar to Sarkar T et al.¹² In this study, 42.2% were currently married followed by 27.8% widow, 18.9% Unmarried and least (3.3%) were widower. Majority were married as shown by others.^{9-12,15}

In this study, 28.9% had a literacy status upto Higher Secondary; only 7.8% were illiterate, 5.6% non-formally literate or below primary in concordance with Kumari R et al and Sarkar T et al.^{12,9} In contrast to above findings, majority were illiterate (40.15%) as reported by Malhotra V et al.¹¹ Seema Patrikar et al, reported that 63.4% of the patients had passed their 10th grade and almost 10% each were 12th class pass and graduates.¹⁰

Low education status and less awareness regarding safe sex could be a reason for high prevalence among this group of people.¹⁵ High proportion of widow positivity might be due to higher sexual aggressiveness of young widows when their husband died of AIDS as shown by Jayaram et al in Karnataka.¹⁵ One-fourth (25.6%) of participants were addicted to tobacco use and 12.2% were alcoholic in this study whereas slightly higher numbers

(27.6%) were found addicted to both tobacco and alcohol.¹⁴

In this study majority (58.9%) got infected with HIV through heterosexual route followed by IV drug use (31.1%), least 2 (2.2%) from mother to child transmission. Other studies also found that most common route of transmission of HIV was heterosexual route.^{9,11,14} again, both Kumari R et al, and Malhotra V et al, mentioned unsafe injection, blood transfusion and mother to child, IDU, MSM and sex worker as other route of transmission of HIV.

Present study reported, nearly half (51.1%) had diagnosed with HIV for 11-15 years duration followed by 26.7% for 6-10 years duration. Majority (61.1%) had been treated with HIV 2nd line therapy for 6-10 years duration followed by 36.7% for 0-5 year's duration. In another study Stein JH et al, reported that, majority (61.1%) had been treated with second line antiretroviral therapy for 6-10 years with an average duration of 6.2±2.3 years; lower mean duration (2.5±0.8 years).¹³

This study found that 3.3% subjects had Hepatitis B and 7.8% were co-infected with hepatitis C. Malhotra V et al, reported that Hepatitis B and C virus carriers are 6.3% and 4.3% respectively.¹¹ A study on Co-infections was conducted by Mahajan et al, also showed similar (3.4%) hepatitis B co-infection previously whereas; another study has shown a bit higher co-infection with hepatitis B but lower Hepatitis C virus (9.9% and 6.3% respectively) as compared to current study.^{16,17}

CD4 count is one of most reliable investigation for clinical staging of patients and used to make decision on treatment initiation along with opportunistic infections. Majority (48.9%) in this study; had CD 4 count > 500 cells/ml followed by 26.7% had CD4 count between 350-500 cells/ml. Only 10% were having 150-250 cells/ml CD 4 count whereas Seema Patrikar et al. maximum (74.5%) having low CD 4 count 50-200 cells/ml; only 2% had CD 4 count > 500 cells/ml.¹⁰ Effect was also observed drastically on CD4 count and weight improvement with statically significance by Ramesh K.¹⁴

This study has a number of limitations; being a cross-sectional study few gap might exists. This study was conducted in a tertiary care hospital in Manipur; therefore, caution needs to be taken to generalize the findings.

CONCLUSION

Young population were most affected group and heterosexual route being the commonest mode of transmission. Combination of socio-demographic, behavioural risk factor and unawareness is responsible for rapid spread of HIV/AIDS. People need to be educated for primary and secondary prevention. Epidemiological studies in various settings might help to

understand the role and complex relations of behavioural, social and demographic factors, which will help to interrupt and control the transmission of HIV/AIDS.

Recommendations

- Economically and sexually productive younger age group is mostly affected, so they should be targeted and sensitized regarding HIV/AIDS with I.E.C (Information, Education and Communication) intervention strategies.
- An overall improvement of literacy status might modify the socio-demographic determinants in a long run as higher literacy helps in getting a better job opportunity, uplifting the socio-economic status of an individual and his family.
- Increased literacy will also help in better understanding of the disease, mode of transmission, personal protective measures and social responsibilities at individual level, which will help to a great extent in preventing the spread of this deadly pandemic.
- Strengthening of counselling process is an important aspect of control and prevention of HIV/AIDS because counselling improves the health status of the study subjects by means of improving hygienic practices, taking nutritious diet, adoption of safe sexual practices, abstain from bad habits like smoking and alcohol, relieving from false beliefs, prevention of suicidal tendencies and keeping the housing environment healthy etc.

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REFERENCES

1. AIDS Epidemic Update. WHO/UNAIDS, 2010. Available at: https://www.unaids.org/globalreport/documents/20101123_GlobalReport_full_en.pdf. Accessed 15 April 2016.
2. HIV/AIDS fact sheet. Available at: <http://www.who.int/mediacentre/factsheets/fs360/en/>. Updated November 2014. Accessed 25 December 2016.
3. National AIDS Control Organisation. NACO Annual Report; 2013-14. Available at: http://naco.gov.in/sites/default/files/NACO_English%202013-14.pdf. Accessed 23 January 2017.
4. National AIDS Control Organisation (NACO). Department of AIDS Control, Ministry of Health and Family Welfare Annual Report; 2011. Available at: <http://naco.gov.in/documents/annual-reports>. Accessed 23 January 2017.
5. State Fact Sheets March 2014. Department of AIDS Control. Ministry of Health and Family Welfare, Government of India. Available at: http://naco.gov.in/sites/default/files/State_Fact_Sheet_2013_14.pdf. Accessed 25 December 2016.
6. Kishore J. National health programmes of India. 5th edition. New Delhi: Century publications; 2010: 138.
7. HHS/CDC Global AIDS program (G A P) in India. Available at: <https://www.cdc.gov/globalAIDS/docs/2005RevisedGAPFACTSHEET.pdf>. Accessed 10 July 2016.
8. Muralidharan S, Acharya AK, Margabandu S, Purushotaman S, Kannan R, Mahendrakar S, et al. Stigma and Discrimination faced by HIV-infected Adults on Antiretroviral Therapy for more than 1 Year in Raichur Taluk, Karnataka, India. *J Contemporary Dental Prac.* 2017 Sep;18(9):765-70.
9. Kumari R, Kumar M, Mohapatra SC. Clinico-demographic profile of HIV patients at ART centre of a tertiary care referral hospital in North India. *Inter J Commu Med Public Health.* 2017;4(9):3166-73.
10. Patrikar S, Subramaniam S, Vasudevan B, Bhatti V, Kotwal A. Profile of HIV Patients on Second Line Antiretroviral Therapy: The Indian Experience. *J AIDS Clin Res.* 2015;6(459):2.
11. Malhotra V, Balgir R, Kaura S. Socio-Demographic Profile and Risky Behaviour Pattern of Patients Registered at ART Centre, Patiala, Punjab. *Ntl J Community Med.* 2016;7(2):101-5.
12. Sarkar T, Karmakar N, Dasgupta A, Saha B. A Cross-Sectional Study on Socio- Demographic, Behavioural & Clinical Profile of Adult Male People Living With HIV/AIDS Attending In A Tertiary Hospital of Kolkata, India. *Saudi Journal of Medical and Pharmaceutical Sciences.* 2018;4(3): 354-60. Available at: <https://scholarsmepub.com/wp-content/uploads/2018/03/SJMPS-43-354-360-c.pdf> Accessed on 10 July 2019.
13. Stein JH, Klein MA, Bellehumeur JL, McBride PE, Wiebe DA, Otvos JD, et al. Use of human immunodeficiency virus-1 protease inhibitors is associated with atherogenic lipoprotein changes and endothelial dysfunction. *Circulation.* 2001;104(3):257-62.
14. Ramesh K, Rao DN. Clinico-Epidemiological Profile of HIV Positive Patients on Anti Retroviral Treatment at VIMS, Bellary, Karnataka. *J Evolution Medical Dental Sci.* 2013;2(1):23-8.
15. Jayarama S, Shenoy S, Unnikrishnan B, Ramapuram J, Rao M. Profiles of attendees in voluntary counseling and testing centers of a medical college hospital in coastal Karnataka. *Ind J*

Commu Med: Official Publication Ind Assoc Preventive Soc Med. 2008;33(1):43.

16. Mahajan A, Tandon VR, Verma S, Singh JB, Sharma M. Prevalence of tuberculosis, hepatitis B, hepatitis C and syphilis co-infections among HIV/AIDS patients. *Ind J Med Microbiol.* 2008;26(2):196.
17. Jain M, Chakravarti A, Verma V, Bhalla P. Seroprevalence of hepatitis viruses in patients

infected with the human immunodeficiency virus. *Ind J Pathol Microbiol.* 2009;52(1):17.

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