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Dermatology

A STUDY OF CHANGING GEOGRAPHICAL DISTRIBUTION OF HIV CASES IN THE BACKWARD UTTARA KANNADA DISTRICT IN KARNATAKA, TALUK WISE (2014-2017).

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ABSTRACT The present study was undertaken to determine the geographical distribution of HIV positive cases in Uttara Kannada district

MATERIALS & METHODS A total of 334 HIV positive patients were studied in Uttara Kannada district in the year 2014 and 2017. There was 54% reduction in the number if cases from year 2014 to 2017.

RESULTST he highest prevalence of HIV in 2014 was in Karwar taluk with 17% of total cases in Uttara Kannada district. In 2017 the highest prevalence was again in karwar taluk with 21% of total cases in district. The highest prevalence was among agriculturists and fishermen.

KEYWORDS : HIV, HIV UTTARA KANNADA, KARNATAKA, AIDS

1. INTRODUCTION

Park has defined that "medical geography is a scientific discipline joining with geography". Medical geography is the application of the geographical concept and the techniques to health-related problems. The systematic study of geographical distribution of a particular disease and the related environmental influences is the main object of medical geography. It deals with the different disease distributions. Locations and efficiency of health care centers are also included in the study. Mortality, morbidity and nutritional status are also part of medical geography. Pyle (1979) has denoted that "The medical geography is a multidimensional body of knowledge but at the same time a multifaceted approach geared towards understanding spatial of aspects of human health problem".

2. MEDICAL GEOGRAPHY IN INDIA

600 BC to 400 A.D. was the finest period of Indian Medicine. Taxila and Varanasi were renowned centers of medical research. It was during this period that Sushrutha the surgeon, and Atreya the physician made their everlasting contributions to medical science. They laid the scientific basis of medical science in ancient India. The medical geography in India is still the most under developed branches of geography in this country.

3. HIV: HIV, the acquired immunodeficiency syndrome is a fatal illness caused by a retrovirus known as the Human Immunodeficiency Virus (HIV). It destroys the body's immune system. First recognized in USA in 1981, HIV generally implies last stage of HIV infection.

3.1. EPIDEMIOLOGY:

A. AGENT: The virus was called "Lymphadenopathy associated virus" (LAV) by the French scientists when it was first identified. American Researchers called it "human T Cell Lymphotropic virus III (HTLV – III)." The name "Human Immuno-Deficiency virus (HIV)" was given by the international committee on the Taxonomy in May 1986. The virus is 1/10,000th of a millimeter in diameter. It is a protein shell comprising two short strands of genetic material (RNA) and a few enzymes. The virus uses the human cells to replicate itself. The virus reproduces in actively dividing T4 lymphocytes.

HIV can be divided into two major types, HIV type 1 (HIV-1) and HIV type 2 (HIV-2). HIV-1 is related to viruses found in chimpanzees and gorillas living in western Africa, while HIV-2 viruses are related to viruses found in the endangered West African primate sooty mangabey. Though both can infect humans, HIV 1 is the commonest.

B. RESERVOIR OF INFECTION: The virus remains in the body of the infected person lifelong. The infected person can infect other people for years.

C. SOURCE OF INFECTION: Blood, semen, and CSF contain highest concentration of virus. Tears, saliva, breast milk, and urine, cervical and vaginal secretions, contain little amount of virus.

D. AGE: Most cases have occurred among sexually active persons 20-49 years. This group contains child bearing and child rearing age and the most productive members of society.

E. SEX: About 70% of cases are homosexual [mostly males] or bisexual. Abnormal sexual practices like multiple sexual partners, anal intercourse and homosexuality increase the risk of infection. Prostitutes have a higher rate of infection.

F. HIGH RISK GROUPS: contain homosexuals and bisexuals, heterosexual partners including prostitutes with multiple exposures, intravenous drug abusers, repeated transfusion recipients of blood and blood products.

G. IMMUNOLOGY: Gradual depletion of a group of white blood cells (Lymphocytes) called T-helper or T- 4 [CD4] cells is associated with the immune system disorders of AIDS/HIV infection. HIV selectively infects T-helper cells. The infected T-helper cells are destroyed, during viral replications.

H. GLOBAL HIV STATISTICS

- 20.9 million people were accessing antiretroviral therapy in June 2017.
- 36.7 million [30.8 million–42.9 million] people globally were living with HIV in 2016.
- 1.8 million [1.6 million–2.1 million] people became newly infected with HIV in 2016.
- 1 million [830 000–1.2 million] people died from HIV-related illnesses in 2016.
- 76.1 million [65.2 million–88.0 million] people have become infected with HIV since the start of the epidemic.
- 35.0 million [28.9 million–41.5 million] people have died from HIV-related illnesses since the start of the epidemic.

I. PROBLEM OF HIV CASES IN INDIA: Due to its large population size, India has the third largest HIV case epidemic in the world. Among the States/UTs, in 2015, Manipur has shown the highest estimated adult HIV case prevalence of 1.15%, followed by Mizoram (0.80%), Nagaland (0.78%), Andhra Pradesh & Telangana (0.66%), Karnataka (0.45%), Gujarat (0.42%) and Goa (0.40%). Besides these States, Maharashtra, Chandigarh, Tripura and Tamil Nadu have shown estimated adult HIV case prevalence greater than the national prevalence (0.26%), while Odisha, Bihar, Sikkim, Delhi, Rajasthan and West Bengal have shown an estimated adult HIV case prevalence between 0.21–0.25%. All other States/UTs have levels of adult HIV case prevalence below 0.20%.

J. PROBLEM OF HIV CASES IN UTTARA KANNADA DISTRICT:

Uttara Kannada is a backward district with a 1,437,169 Population from 11 Taluks. It is estimated that there are 105 cases of HIV Positives in Uttara Kannada, up the end of 2017.

As for the mode of transmission of HIV infection, heterosexual transmission is the predominant mode of transmission of HIV infection, and heterosexual transmission is the Predominant mode of transmission of HIV infection in the district. Commercial sex workers, truckers, helper, men who have sex with men, intravenous injecting drug users are the targeted high risk groups in the district, while the group such as migrant population workers of unorganized sectors slum dwellers, street children, youth adolescent has been identified as the most vulnerable groups.

Karawar is leading with 22, Ankola 16, Kumta 13, Honavar 10, Bhatkal 5, Siddapur 2, Sirsi 5, Mundgod 0, Yellapur 10, Haliyal 19, Joida 3, cases as at the end of 2017

3.2. THE PROBLEM

In Uttara Kannada, the syndrome has a wide spread prevalence and most affected region is coastal belt of Karawar, Ankola, Kumta, Honnavar, the reason being this coastal belt of Karnataka has fishing and agriculture as most important occupations. Lot of developmental works like Project Sea Bird and Kaiga Nuclear projects are going on with a huge number of floating population with AIDS/ HIV infections arriving from various regions of the country. The present study is confined to trace Geographical distribution of HIV cases and what is the trend over a time from 2014 to 2017.

3.3. AIMS AND OBJECTIVES:

The aim of the study is to analyze HIV cases in Uttara Kannada. To achieve the above-mentioned aim, the following objectives are taken to consideration.

A. To finds the Geographical Distribution of HIV cases in Uttara Kannada district during 2014-2017. And to analyze, the Age group wise, place of Residence, and occupational wise affected patients.
B. Monitor the trends of HIV case epidemic.

C. Provide the impact of preventive and control activities of HIV case epidemic.

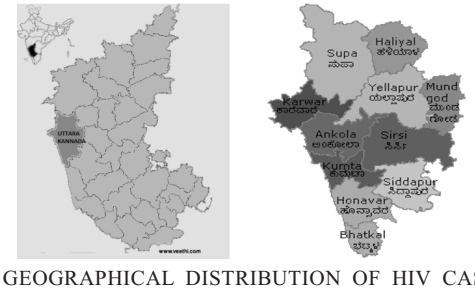
3.4. METHOD

Study of Geographical Distribution of HIV cases in Uttara Kannada 2014-2017 done by using GIS technique. The relation between population and HIV prevailing patients determined by using Time series and moving average techniques, and Pie chart are used to Identify and analyse HIV cases in Uttara Kannada.

3.5. STUDY AREA

The study area district covers an area of 10,291 sq.km equivalent of 5% of the total area of Karnataka. The main geographic feature of the district is the Western Ghats or Sahyadri range, which runs from north to south through the district. Between the Sahyadri and the sea is a narrow coastal strip, known as the Lower Ghats, which varies from 8 to 24 kilometres (5.0 to 14.9 mi) in width. Behind the coastal plain are flat-topped hills from 60 to 100 metres in height, and behind the hills are the ridges and peaks of the Sahyadris. East of the Sahyadris is the Upper Ghat, part of the vast Deccan plateau. The district's high rainfall supports lush forests, which cover approximately 70% of the district. Agriculture in general and fishing in coastal belt are the main occupations. Vide Figure 1.

FIG 1. GEOGRAPHICAL MAP OF Uttara Kannada District in Karnataka



3.6. GEOGRAPHICAL DISTRIBUTION OF HIV CASES IN UTTARA KANNADA TALUK WISE

A. GEOGRAPHICAL DISTRIBUTION OF HIV CASES IN UTTARA KANNADA TALUK WISE–2014

In the following table 1, we look at the geographical distribution of HIV cases in Uttara Kannada in the year of 2014; the prevalence of HIV cases is very high in Karawar (17.47%), Kumta (13.10%), Ankola (12.66%), Sirsi (12.66%) is also the high percentage rate region in the year of 2014. The low AIDS/ HIV prevalent in Honavar (6.55%) Joida (6.55%) Haliyal (6.11%) Bhatkal (4.36%) Mundgod (4.36%) and soon. In this Karawar 23 followed by, Kumta 13, Ankola 13, Sirsi 12, Yellapur 11, Siddapur 10 Male HIV Patients in the year of 2014. The Uttara Kannada during the 2014 the total AIDS/HIV patients were in 229. In this Male Patients was 108 and Female was in 121.

TABLE 1. GEOGRAPHICAL DISTRIBUTIONS OF AIDS IN UTTARA KANNADA DISTRICT IN 2014

	Taluk	Male	%	Female	%	Total		Overall %
1	Karawar	23	57.50	17	42.50	40	229	17.47
2	Ankola	13	44.83	16	55.17	29	229	12.66
3	Kumta	13	43.33	17	56.67	30	229	13.10
4	Honavar	8	53.33	7	46.67	15	229	6.55
5	Bhatkal	3	30.00	7	70.00	10	229	4.37
6	Siddapur	10	58.82	7	41.18	17	229	7.42
7	Sirsi	12	41.38	17	58.62	29	229	12.66
8	Mundgod	4	40.00	6	60.00	10	229	4.37
9	Yellapur	11	55.00	9	45.00	20	229	8.73
10	Haliyal	5	35.71	9	64.29	14	229	6.11
11	Joida	6	40.00	9	60.00	15	229	6.55
	total	108	47.16	121	52.84	229		

GEOGRAPHICAL DISTRIBUTION OF HIV CASES IN UTTARA KANNADA, TALUK WISE – 2017

The Table 2 shows that the geographical distribution of HIV cases in Uttara Kannada in the year of 2017. The HIV case Prevalence as highly in Karawar (20.95%) Haliyal (18.10%) Ankola (15.24%) Kumta (12.38%). The second category of (5% to 10%) is in the Honavar (9.52%) Yellapur (9.52%). The third category of (0% to 5%) Prevalence in Bhatkal (4.76%) Sirsi (4.76%) Joida (2.86%) Siddapur (1.90%) and soon. In this we looked in to the geographical distribution of HIV cases in Uttara Kannada the central place of Uttara Kannada concentrated high in AIDS/HIV affected patients. Mundgod Taluk of Uttara Kannada is very low level.

TABLE 2. GEOGRAPHICAL DISTRIBUTION OF AIDS CASES IN UTTARA KANNADA TALUK WISE – 2017

	Taluk	Total	%	Male	%	Female	%
1	Karawar	22	20.95	15	68.18	7	31.82
2	Ankola	16	15.24	8	50.00	8	50.00
3	Kumta	13	12.38	7	53.85	6	46.15
4	Honavar	10	9.52	9	90.00	1	10.00
5	Bhatkal	5	4.76	3	60.00	2	40.00
6	Siddapur	2	1.90	1	50.00	1	50.00
7	Sirsi	5	4.76	3	60.00	2	40.00
8	Mundgod	0	0.00	0	0.00	0	0.00
9	Yellapur	10	9.52	6	60.00	4	40.00
10	Haliyal	19	18.10	10	52.63	9	47.37
11	Joida	3	2.86	0	0.00	3	100.00
	Total	105		62	59.05	43	40.95

C. AGE-GROUP WISE HIV CASE DISTRIBUTION 2014-2017

In the year 2014 the proportion of HIV case prevalence is high in 30-49-year age Group was 68.1% followed by above 50 years age group. The prevalence rate among the Female in 0-49 age group is considerably high compared the Male. Vide Table 3/Fig 2.

In 2017 the proportion of HIV cases prevalence is high in 30-49 years age Group followed by above 50 age group 13.9%. The proportion of HIV prevailing high in the year to year in 2014-2017 the 30-49 years age Group was very highly affected in HIV infection in the year. Vide Table 3/Fig 2 & 3

TABLE 3. AGE WISE DISTRIBUTION OF AIDS IN UTTARA KANNAD ADISTRICT

		2017			2014		
	Age	Male	Female	Total	Male	Female	Total
1	0-14	2	0	2	4	6	10
2	15-29	7	7	14	11	16	27
3	30-49	48	29	77	77	81	158
4	Above 50	7	8	15	19	18	37
		64	44	108	111	121	232

Fig 2: AGEWISE DISTRIBUTION OF AIDS IN 2014

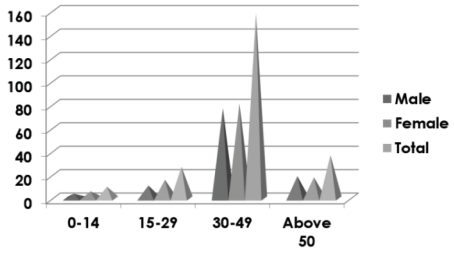
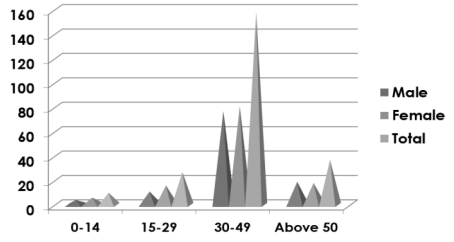


Fig 3. AGE WISE DISTRIBUTION OF AIDS IN 2017



D. EDUCATIONAL STATUS WISE HIV PATIENTS

The HIV case prevalence in 2014 was high among the population who had studied till 12th standard i.e. 26.71 percent and 25.54% was in the population studied till 5th standard. Table 4. The HIV case prevalence in 2017 was high among the population who studied till 5th standard i.e. 43.22% percent and 27.11% was in illiterates. The Graduates and above percentage level is 13.56%. Population who had studied till 5th std had a high prevalence of HIV cases in Uttara Kannada district. So, the difference is not statistically significant, and monitoring the trend over the years provides an important clue regarding influence of education in prevention of transmission of HIV infection.

TABLE 4. EDUCATIONAL STATUS OF AIDS PATIENTS

	2017	2014
Illeterate	64	151
5th Std.	102	153
12th Std.	38	160
Graduation & above	32	135

E. OCCUPATION WISE HIV PATIENTS

Table 5 shows the occupational distribution of HIV case prevalence in the year 2014 and 2017. Agriculture & fisheries group had a higher prevalence of HIV infection compared with other groups. About 79.04% - 82% concentrated in the Agriculture & fisheries.

TABLE 5. OCCUPATIONWISWE DISTRIBUTION OF AIDS

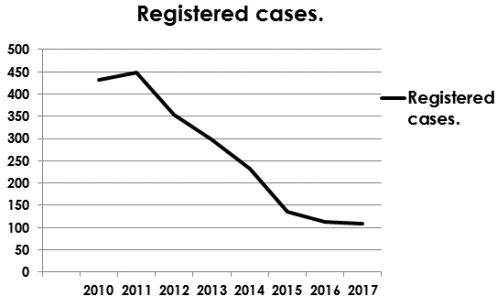
	2017	2014
Agriculture & fisheries	132	144
Drivers	0	4
Industrial workers	2	11
Hotel staff	16	11
Services	4	13
Unemployed	6	3
Children & Students	7	8

F. TIME SERIES ANALYSIS: We have to conclude the Average Trend with the help of moving average curve, HIV patients in Uttara Kannada during the period of 2010-2017. The maximum patients are shown in 449 in 2011. Gradually, HIV patients are decreasing year by year. Ref Table 6 and figure 4.

TABLE 6. YEARWISE TOTAL NO. OF AIDS CASES REGISTERED IN UTTARA KANNADA DISTRICT

	Year	No. of AIDS cases
1	2010	432
2	2011	449
3	2012	354
4	2013	299
5	2014	232
6	2015	135
7	2016	112
8	2017	108

FIG 4. YEARWISE TOTAL NO. OF AIDS CASES REGISTERED IN UTTARA KANNADA DISTRICT



3.7. CONCLUSION

The present study clearly indicates the downward trend in the occurrence of HIV cases in Uttara Kannada District in Karnataka, over the years, though it is possible that there may be a number of HIV cases which might have remained unreported or unregistered. This falling trend can be attributed to the vigorous mass education efforts, establishment of ART centres in the District, dedicated services with free distribution of medicines.

It is also clear that the disease is more prevalent in the coastal part due to the high exposure of those areas to massive developmental activities. Those with lower education standards are the most exposed due to unawareness, lower quality of living, and sexual indiscretion.

The main objectives of mass awareness drives are to update the public about the epidemic and its implications, to create awareness about manner of spread of the epidemic, and the means to protect oneself, to activate support to involvement programmers and to create a positive setting to increase the efficiency of the intervention program. People with lower education status should be focused more to educate regarding the disease and how healthy sexual habits are important.

High risk groups should be advised not to donate blood, body organs, sperm or other tissues. The tools used by the HIV positive persons, for injections, ear piercing, etc., should not be used by others. Not all the children born to AIDS/HIV infected mothers will test positive to HIV.

The rate of mother to child transmission is around 20-30% without treatment. With antiretroviral treatment, the risk of transmission comes down to 3%. Mother to child transmission of AIDS/HIV infection can be prevented during antenatal period and child birth. Breast feeding should be avoided.

At present there is no vaccine or cure for of AIDS/HIV infection. The development of drugs that suppress the HIV infection rather than its complications has been a significant development. Post exposure

prophylactic (PEP) for HIV refers to antiretroviral drug treatment undertaken within hours of accidental exposure to the virus. Four weeks of prophylactic treatment after accidental needle stick exposure to HIV among health care workers significantly decreases the chance of their becoming infected by 79% according to a recent study by US government. It is important to inform how HIV infection does not spread through social contact so that HIV Positive persons are not discriminated.

3.8. MANAGEMENT OF AIDS/ HIV PATIENTS: Apart from specific anti retroviral chemotherapy,

1. Counselling is an important part of care and support for AIDS/HIV Patients.
2. Respect and accept the patient in whatever situation he or she may be.
4. Carefully listen and try to resolve the patient's problems and situations
5. Care and Psychological support to the patients should be offered by their family and society

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