



**EFFECTIVENESS OF SOURCES OF HIV/AIDS AWARENESS IN INDIA: A STUDY USING NFHS-III DATA.**

**M.Mamatha**

Research Scholar, Department of Statistics, Kakatiya University, Warangal.

**Abstract**

Present study attempts to explore awareness pattern of the dreaded disease AIDS and the effective information sources for spreading the information about the disease are explored by using the National Family and Health Survey (NFHS-III) data. The NFHS-III data is a representative sample of households obtained from throughout India. The study has revealed that still 11.2% of the total population is not aware of AIDS. The highest percentage of the lack of awareness exists among 15-19 age-group, rural Indian population, Hindus, illiterate people, people doing agriculture. The most important way to stop HIV/AIDS is through awareness about the disease and imparting the knowledge regarding spread and consequences if attacked by disease of AIDS. It is explored by using multivariate data analysis techniques that the most popular information sources about AIDS are Television, Radio, Friends and relatives. The media should in general play a positive role in generating an enabling environment for AIDS prevention and control and care of the HIV-infected people and also take a lead role for adopting a humane approach towards those who have already been infected with HIV/AIDS.

**Key words:** Awareness of AIDS, Information sources of AIDS, Chi-square test, Cluster analysis.

**1. INTRODUCTION**

Acquired immune deficiency syndrome (AIDS) is a final stage of HIV caused by a virus known as Human Immune Deficiency Virus. The HIV attacks the body’s immune system, weakens the defense against disease over the period of time. A person who has HIV gradually loses protection of his or her immune system and surrender to common infections leading to the condition called AIDS. AIDS is considered to be a dreaded disease as no effective vaccine or drug therapy for complete cure is available so far. Recent estimates keep 33.2 million people suffering from HIV, with 2.5 million people newly infected with HIV and 2.1 million deaths in the year of 2007 globally. Since, the detection of first case in 1986 in Tamil Nadu, 68809 confirmed cases of AIDS were reported till March 31, 2004. According to the latest available estimates, there are currently about 2.5 million people living with HIV or AIDS in India, corresponding to an HIV prevalence rate of 0.36 percent for the population of ages 15-49 (IIPS, 2007). HIV prevention and treatment programs are successfully reaching in lowering the incidence rate and helping the people in need. Though the incidence of AIDS in India is low, the size and the complexity of India’s population can affect in raising India’s HIV/AIDS epidemic.

**2. DATA SOURCE AND METHODS**

Data was analyzed using SPSS software .The database for the present article is from the NFHS-III (2005-2006). The NFHS surveys were conducted by the Ministry of health And Family Welfare and International Institute for Population Sciences (IIPS), Mumbai as the nodal agency. The research methods adopted in the study are chi-square test and cluster analysis. In the first stage the chi-square test is applied to find the association of the variables. And in the next stage the multivariate data analysis technique (agglomerative hierarchical clustering) is adopted to find out the results.

**2.1. Chi-square test:**

One of the most useful non-parametric statistics is chi-square test. The formula for chi-square for testing the association between the categorical variables is

$$\chi^2 = \sum_{i=1}^r \sum_{j=1}^c \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

Where

- r = number of rows
- c = number of columns
- O<sub>ij</sub> = Observed frequency or Actual number in cell (i , j)
- E<sub>ij</sub> = Expected frequency in cell (i , j)
- (r-1)\*(c-1) = degrees of freedom

We use the P-value for making a decision. It is defined as “the probability that the null hypothesis is true”. For a fixed level of significance ‘  $\alpha$  ’ (usually 0.05 or 0.01, more rarely 0.10), we reject null hypothesis if the P-value is smaller than  $\alpha$  , otherwise we fail to reject null hypothesis at level  $\alpha$  .



We can compute P-value by using the following formula

$$P\text{-value} = [0.5^{df/2} / \Gamma(df/2)] \times (\chi^2)^{(df/2)-1} \times e^{-\chi^2/2}$$

Where

-Gamma value

d.f- degrees of freedom

$\chi^2$ - Chi-square value

## 2.2. Agglomerative Hierarchical Clustering

It is a multivariate statistical procedure that starts with a data set containing information about a sample of entities and attempts to reorganize these entities into relatively homogeneous groups. At each stage the methods fuse individuals or groups of individuals which are closest (or most similar). Differences between the methods arise because of the different ways of defining distance (or similarity) between an individual and a group containing several individuals or between two groups of individuals. The clustering of objects can be achieved by similarity/dissimilarity measure or by using correlation coefficient. The linkage of the clusters is done by average linkage clustering method where the distance between two clusters is the average of the distances between all possible pairs of cases in the resulting cluster.

For two sets of observations  $A$  and  $B$  the average linkage clustering is given by

$$\frac{1}{|A||B|} \sum_{a \in A} \sum_{b \in B} d(a, b).$$

## 3. RESULTS

### 3.1 Awareness about AIDS

Out of a sample of 74362, 88.8 % of the people that is 65999 are aware of AIDS and 11.2 % of them that is 8363 people are still not aware of AIDS. Necessary awareness measures can be implied for achieving complete awareness about AIDS among population.

Despite being home to world's third-largest population suffering from HIV/AIDS (the countries South Africa and Nigeria being in first and second positions), AIDS prevalence rate in India is lower than in many other countries. The spread of HIV in India is primarily restricted to southern and North-eastern parts of the country and India has also been praised for its extensive anti-AIDS campaign. The awareness about AIDS is very essential in order to prevent the disease. The epidemic of HIV/AIDS is now progressing at a rapid pace among young school going and college students. The studies reported that young people form a significant segment of those attending sexually transmitted infection (STI) clinics and these are infected by HIV. As youth is a valuable resource for the future of our nation, it is vital that they should be provided with an ample amount of information so as to protect themselves and their counterparts from falling as a victim of this still an incurable killer disease. We considered the age from 15 to 54 and partitioned into eight groups and the awareness among people in these groups is cross tabulated. It is noticed that there exist people of all age groups who are not aware of the AIDS. The highest percentage of people who are not aware about the AIDS is 15-19 age group. It can be also noticed that 35-39, 40-44 and 45-49 age groups also observed with significant percentage of the people un aware of the AIDS. Hence, there is an urgent need to generate appropriate programs which lays stress on interpersonal communication for targeted groups like students, youth, men and women, migrant workers and children to achieve the best results.

In INDIA, the rural population is more than the urban and literacy and facilities in rural are poor when compared with the urban. The urban residents are much more aware of AIDS than rural population and the lack of awareness about AIDS among the rural is subjected to many reasons. It is required to concentrate on more awareness education of AIDS in rural to achieve greater awareness and better knowledge.

Three major faiths are clearly dominant in each part of India namely Hindus, Muslims and Christians. The lack of awareness pattern explores that, Hindus take a major share in lack of awareness with 8.7% and Muslims in the second position with 1.5% and Christians having 0.7%.

The growth of country completely depends upon education. The role of education in shaping and modifying the social structure is a topic of interest in building up of the nation. It is clear that the people having good educational attainment are observed with better awareness about the AIDS indicating that education as the key defense against AIDS. It can be also noticed that a significantly large percentage of people unaware about AIDS is illiterate. We notice that secondary and higher

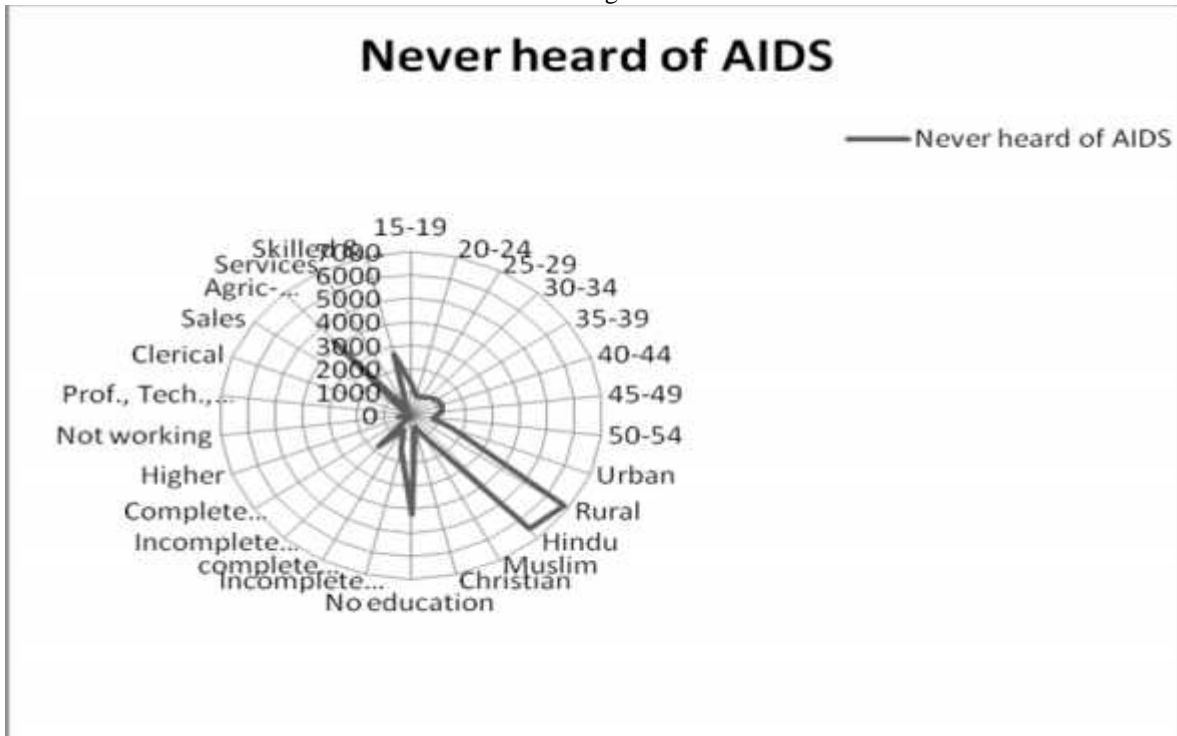


education levels have increased AIDS awareness and knowledge which could significantly help reducing the rate of prevalence of AIDS. The difference between less and more education on respondents awareness is a striking fact.

An occupation is the person’s job or means of employment for the survival. The people related to clerical and Prof./Tech./Mangement occupations have better amount of awareness about AIDS. A significant relationship observed between level of education and the occupation, indicating in better level of education to better occupation and Hence, better awareness about AIDS is created.

The attributes, age 5-year groups, Type of place of residence, Religion, Educational attainment and Respondents occupation versus ever heard of AIDS tells us that there is statistically significant association between them.

Figure 1



### 3.2 Information sources about AIDS

The knowledge and awareness about AIDS is directly influenced by the information sources about the AIDS. The data of NFHS-III has collected data, to know from the people about the various modes of information about AIDS and analysis is done to explore the most effective measure of information source.

Mass media campaigns can directly and indirectly produce positive changes or prevent negative hinges in health-related behaviors across large populations (Melanie A Wakefield, Barbara Loken, Robert C Hornik- (2010)).

The following table considers 15 information sources and the analysis carried out to know the most effective measure of information.

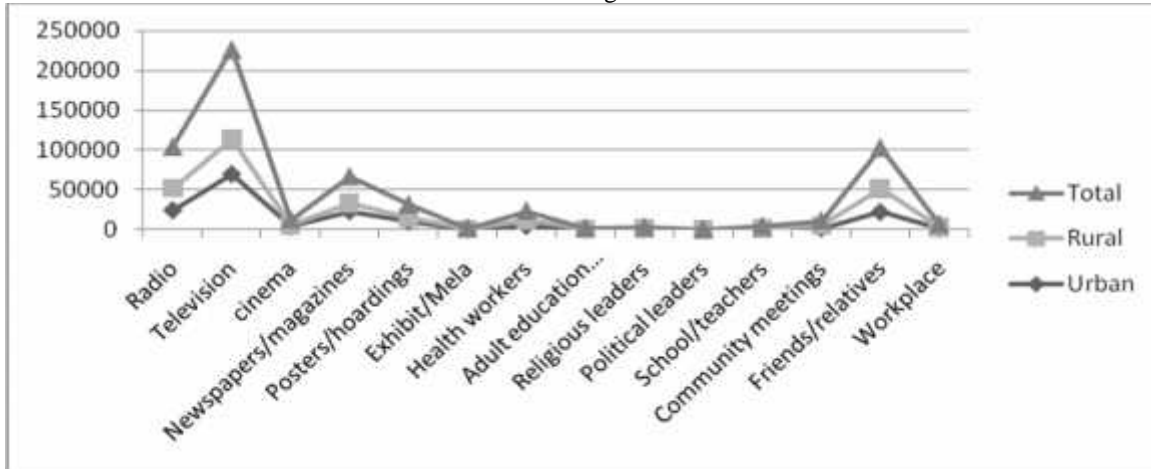
Table 1

AIDS information source	Urban	Rural	Total
Radio	24758	27356	52114
Television	69591	43814	113405
cinema	4439	1831	6270
Newspapers/magazines	23354	10169	33523
Posters/hoardings	10814	5005	15819
Exhibit/Mela	692	593	1285



Health workers	5139	6697	11836
Adult education programme	650	699	1349
Religious leaders	611	1015	1626
Political leaders	136	102	238
School/teachers	1358	858	2216
Community meetings	2205	3433	5638
Friends/relatives	22444	29206	51650
Workplace	1782	1738	3520

Figure 2:



The analysis observes that five major sources of the information are

- 1 Television
- 2 Radio
- 3 Friends and relatives
- 4 News Papers / Magazines
- 5 Posters /hoardings

It is seen that Television (36%) emerged as the most effective source of followed by Radio (17%) and then Friends and relatives (16%) in creating AIDS awareness among the people of India. Among the electronic media Television is ranked to be most effective source of information in urban as well as rural. With respect to the effectiveness of the sources in rural, Television (33%) emerged as the most effective source of AIDS ,followed by Friends and relatives(22%) and then radio(21%),whereas due to illiteracy prevailing in the rural newspaper/magazine(8%) observed to the less effective in spreading the information on AIDS.On the other hand with respect to the effectiveness of the sources in urban, Television (42%) emerged as the most effective source of AIDS, followed by radio (15%) and then newspaper/magazine(14%) and Friends and relatives(13%). Though newspapers/magazine proves to be effective information source in urban than compared to rural, it is established that Television takes a lead in creating the awareness about the disease whether it is urban or rural. On the whole, the other sources have only little influence in creating awareness of AIDS among the people of India. Hence, the Electronic and print media has almost reached universal coverage for dissemination of information in India. The impressive rise in levels of awareness about HIV/AIDS in the general community can be partly attributed to electronic and print media which has taken this message right up to the village level.

The above results do not find any kind of pattern or similarities. Hence, in the next section, we discuss the aspect of AIDS data on different information sources is similar or dissimilar by the technique of the cluster analysis.

Cluster analysis is a technique which can be applied to both for categorical as well as quantitative data. Here, we consider data which is categorical. The information sources are effective and are similar is being tested by the cluster analysis technique.

Table 2



AIDS information source:	Label	4 Clusters
1. Radio	S902A	1
2. Television	S902B	2
3. Cinema	S902C	3
4. Newspapers/magazines	S902D	3
5. Posters/hoardings	S902E	3
6. Exhibition/mela	S902F	3
7. Health workers	S902G	3
8. Adult education programme	S902H	3
9. Religious leaders	S902I	3
10. Political leaders	S902J	3
11. Schools/teachers	S902K	3
12. Community meetings	S902L	3
13. Husband	S902M	3
14. Friends and relatives	S902N	4
15. Work space	S902O	3

Hierarchical cluster analysis (HCA) is an exploratory tool designed to reveal natural groupings (or clusters) within a data set that would otherwise not be apparent. Hierarchical clustering analysis is computed for finding the similarities in the information source for the spread of awareness about the AIDS. This clustering technique operates sequentially from the stage in which each information source considered to be single member cluster to the final stage in which there is a single group containing 15 information sources. At each stage in procedure the number of groups is reduced by one, by joining together the groups that are most similar and closer to each other. Since, the clusters at each stage are obtained by fusion of two clusters from the previous stage, these methods lead to hierarchical structure of information sources.

The clustering process observes that a unique clusters is observed due the information sources radio, television and friends and relatives and we observe the similarity between the information sources cinema, News paper/magazine, posters/hoardings, exhibition/mela, health workers, adult education programs, religious leaders, political leaders, schools/teachers, community meetings, husband and work space with respect to creating awareness among the people of India.

#### 4. CONCLUSIONS

It is suggested that the advertisement campaigns through Television, Radio and friends/relatives should be extensively used to achieve 100% awareness about the AIDS in India and also the participation of schools/teachers, community meetings and adult education programs in creating the awareness about AIDS should be enhanced.

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