

*Full Length Research Paper*

## Profiles of attendees in integrated counseling and testing centre at Maharani Hospital, Government Medical College, Bastar (Chhattisgarh), India

T Sinha\*, A. K. Bansal, R. S. Mohan, H. B. Rathi, P. K. Shrivastava, Q. H. Khan, V. K. S. Chauhan and S. Tiwari

Department of Community Medicine GMC Jagdalpur (CG), Pin 494001, India.

Accepted 7 March, 2013

This study aims to study the socio demographic profile and risk behaviour of sero-positive attendees of Integrated Counseling Testing Centre (ICTC). The study design used was retrospective study setting on ICTC in the out-patient complex of G.M.C., Jagdalpur. Record of all 1706 attendees of ICTC in the year 2008 and the data of attendees in the years 2007 and 2009 were included in the study to access the time trend of human immunodeficiency virus (HIV). Variables used were age, sex, marital status, educational status, occupation, place of residence and pattern of risk behaviour in relation to HIV/AIDS. Analysis was done by standard statistical method using proportion, chi-square test and other statistical test. Upon analysis of the collected data, it was found out that sero-positivity among males was significantly high in comparison to the females. The percentage of both males and females attendees and their respective sero-positivity was the highest in the 15 to 49 age group. Of the sero-positive subjects, 84.13% were married. Furthermore, 95.22% were either illiterate or had completed studies up to higher secondary school. Majority of the sero-positive lived in urban areas. More than 50% sero-positive held professions like driver, labour or entrepreneur, and 26.98% sero-positives were housewives. Heterosexuality was the most known cause of transmission. Sero-positivity among attendees at ICTC was in increasing order which needs greater attention including the Independent Ethics Committee (IEC) in this tribal heartland of the country.

**Key words:** Integrated Counseling Testing Centre (ICTC), seropositivity, homosexual.

### INTRODUCTION

In the past 30 years, acquired immunodeficiency syndrome (AIDS) has emerged as a devastatingly fatal disease, assuming pandemic proportions sparing no region of the world. It has caused widespread concern amongst the medical professionals and public in general (Park, 2007). According to a World Health Organization (WHO) estimate, about 75% of infections are transmitted through sexual intercourse, 10% perinatally, and another 10% through intravenous (IV) drug use. The pattern is shifting to predominantly heterosexual transmission all

over the world (Agarwal et al., 1999). In the recent past, there has been promising development in global efforts to address the AIDS epidemic, including increased access to effective treatment and prevention. Globally, the rate of new infection is dropping. The 2009 report released by the Joint United Nations Programme on HIV/AIDS (UNAIDS) showed that global new HIV infection rates had fallen by 17% in the period between 2001 and 2008 (The Times of India, 2009). According to UNAIDS, this is a correlation of the popularity of HIV awareness

\*Corresponding author. E-mail: teekusinha@gmail.com.

**Table 1.** Age and sex profile of attendees and sero-positivity status.

| Age (years) | Attendee (n=1706) |       |        |       |       |       | Sero-positives (n=63) |       |        |       |       |       |
|-------------|-------------------|-------|--------|-------|-------|-------|-----------------------|-------|--------|-------|-------|-------|
|             | Male              |       | Female |       | Total |       | Male                  |       | Female |       | Total |       |
|             | No.               | %     | No.    | %     | No.   | %     | No.                   | %     | No.    | %     | No.   | %     |
| ≤14         | 74                | 71.84 | 29     | 28.16 | 103   | 6.04  | 0                     | 0     | 3      | 4.76  | 3     | 4.76  |
| 15-49       | 990               | 74.77 | 334    | 25.23 | 1324  | 77.61 | 34                    | 53.96 | 22     | 34.92 | 56    | 88.88 |
| ≥50         | 237               | 84.95 | 42     | 15.05 | 279   | 16.35 | 4                     | 6.34  | 0      | 0.0   | 4     | 6.34  |
| Total       | 1301              | 76.26 | 405    | 23.74 | 1706  | 100   | 38                    | 60.3  | 25     | 39.68 | 63    | 100   |

Sex:  $\chi^2 = 9.18$ ,  $df = 1$ ,  $P < 0.005$  (Association significant). Age:  $\chi^2 = 14.21$ ,  $df = 2$ ,  $P < 0.0001$  (Association highly significant).

campaigns. While the all-India figures showed the same trend, the guard still must be maintained. At an all-India level, the prevalence rate for adult women is 0.29% and for men, it is 0.43%. With 2.5 million HIV patients, India has the largest number of persons living with HIV/AIDS in the world (Times of India, 2010).

The distribution and spread of disease in India is uneven (Park, 2007). In order to implement the desired interventions in a particular area, the local epidemiology of HIV/AIDS has to be understood with regards to various socio-demographic factors, as well as level I awareness and risk behaviour patterns of the population. To date, it has been demonstrated that the most effective approach for prevention and control of disease is by bringing awareness among the people about the problem and lifestyle changes. The Integrated Counseling and Testing Centre (ICTC) is a non-coercive, confidential and cost-effective key entry point for a range of interventions in HIV prevention and care, which provide people with an opportunity to learn and accept their HIV status in a confidential manner (National AIDS Control Organization, 2000). The data generated in the ICTC may provide the epidemiology of the disease in a particular area/region.

## MATERIALS AND METHODS

This study was carried out among the attendees of ICTC of Government Medical College and its affiliated Maharani Hospital, Jagdalpur (C.G.). The study included all the 1706 attendees who attended ICTC from 1st January, 2008 to 31st December, 2008, either voluntarily or through referral from various sources. Anonymous information from the relevant records of the centre was collected on a pre-tested structured proforma in conformity with National AIDS Control Organization (NACO) guidelines. The variables studied were age, sex, marital status, level of education, occupation, place of residence, pattern of risk behavior and HIV sero-status. In addition, data from 2007, 2008 and 2009 was procured to assess the trend of ICTC attendees and their sero-positivity status. Blood samples were collected by the laboratory technician after counseling and by obtaining informed consent from attendees under strict supervision of the designated pathologist. The collected blood samples were subjected for testing by three rapid/spot test: (i) comb-Aids test, (ii) Tri-Dot test, and (iii) Neva-HIV test. Persons whose blood samples showed negative results by comb-Aids test were given post-test counseling and were declared to be sero-negative. Persons showing positive blood sample results to comb-Aids test were subjected to Tri-Dot test and later to Neva-

HIV test for declaring sero-positivity (National AIDS Control Organization, 2000). Persons showing negative results in the second and third tests were advised to come after 4 to 8 weeks for review. Data thus collected was compiled and analyzed using standard statistical methods.

## RESULTS

Upon analysis of the collected data, it has been observed that 76.26% (1301) of the 1706 attendees were male. The overall positive rate among attendees was found to be 3.69%. Of the 1301 men, 38 (2.92%) were found to be sero-positive in comparison to 25 (1.92%) out of the 405 female attendees. Regarding age, 88.88% sero-positive persons belong to the 15 to 49 age group, who were the most sexually active group, which is more or less in conformity with the national figure. Of the attendees, 3 (4.76%) subjects were female being 14 years of age or younger, and 4 (6.34%) subjects were males of 50 years age or older. However, both age and sex-wise, the distribution pattern of sero-positivity was found to be highly statistically significant (Table 1). Upon further analysis, 34 (89.4%) out of 38 males belonged to the age group of 15 to 49 years, more or less reflecting the same pattern observed among females, that is, 88.00% (22 out of 25).

### Marital status

Distribution of sero-positive persons as per marital status showed that 84.13% (50.79% male and 33.33% female) married couples were living together. Upon further analyses, 3 males were unmarried and 3 widowers, and the remaining 4 females were either widow or separated (Table 2). This association was found to be statistically insignificant.

### Literacy status

The educational status of sero-positive attendees (Table 3) reveals that 22.22% were illiterate, 25.39, 47.61 and 5.55% were educated up to primary, higher secondary

**Table 2.** Profile of marital and sero-positivity status of attendees.

| Marital profile | Attendee |       |        |       |       |       | Sero-positive |       |        |       |       |       |
|-----------------|----------|-------|--------|-------|-------|-------|---------------|-------|--------|-------|-------|-------|
|                 | Male     |       | Female |       | Total |       | Male          |       | Female |       | Total |       |
|                 | No.      | %     | No.    | %     | No.   | %     | No.           | %     | No.    | %     | No.   | %     |
| Married         | 966      | 56.62 | 288    | 16.88 | 1254  | 73.5  | 32            | 50.79 | 21     | 33.33 | 53    | 84.13 |
| Unmarried       | 219      | 12.83 | 60     | 3.51  | 279   | 16.35 | 3             | 4.76  | -      | 0     | 3     | 4.76  |
| <b>Others</b>   |          |       |        |       |       |       |               |       |        |       |       |       |
| (i) Widow       |          |       |        |       |       |       |               |       |        |       |       |       |
| (ii) Widower    | 116      | 6.79  | 57     | 3.34  | 173   | 10.14 | 3             | 4.76  | 4      | 6.34  | 7     | 11.11 |
| (iii) Divorce   |          |       |        |       |       |       |               |       |        |       |       |       |
| (iv) N/A        |          |       |        |       |       |       |               |       |        |       |       |       |
| Total           | 1301     | 76.24 | 405    | 23.73 | 1706  | 100   | 38            | 60.31 | 25     | 39.67 | 63    | 100   |

$\chi^2 = 6.51$ ,  $df = 2$ ,  $P > 0.05$  (Association not significant).

**Table 3.** Profile of educational and sero-positivity status of attendees.

| Education  | Attendee |       | Sero-positive |       |
|------------|----------|-------|---------------|-------|
|            | No.      | %     | No.           | %     |
| Illiterate | 486      | 28.48 | 14            | 22.22 |
| Primary    | 393      | 23.03 | 16            | 25.39 |
| H.S.       | 667      | 29.09 | 30            | 47.61 |
| College    | 138      | 8.09  | 2             | 5.55  |
| NA         | 22       | 12.89 | 1             | 1.58  |
| Total      | 1706     | 100   | 63            | 100   |

$\chi^2 = 4.32$ ,  $df = -42$ ,  $P > 0.005$  ( Association not significant).

and college levels, respectively. However, this association was also found statistically insignificant.

### Residential

As per residential status of sero-positives, 55.56 and 44.44% had rural and urban backgrounds, respectively, and this was found statistically significant (Table 4).

### Occupation

Occupation (Table 5) reveals that 17 (26.98%) sero-positive were housewives, 16 (25.34%) drivers and 10 (15.87%) laborers and farmers. The table further shows that 9.52% of sero-positives belonged to the business community. The association of different occupations was found statistically significant.

### Risk behaviour of sero-positives

Of the sero-positives, 33% were heterosexual, 3.18% had a history of blood transfusions, and 1.59% was the

**Table 4.** Profile of place distribution and sero-positivity status of attendees.

| Place | Attendee |       | Sero-positive |       |
|-------|----------|-------|---------------|-------|
|       | No.      | %     | No.           | %     |
| Urban | 721      | 42.26 | 35            | 55.56 |
| Rural | 985      | 57.74 | 28            | 44.44 |
| Total | 1706     | 100   | 63            | 100   |

$\chi^2 = 64.52$ ,  $df = -1$ ,  $P < 0.0001$  (Association significant).

spouse of sero-positive partner. The risk behaviour for the remaining 61.90% sero-positives was not known. Upon further analysis, it was noted that many attendees had more than one high risk behaviour. On statistical analysis, the association of various occupations was found highly significant ( $P < 0.001$ ) (Table 6).

### Referral services

Doctors referred 23 (19 male and 04 females) sero-positive attendees to ICTC in comparison to 27 (16 males and 11 females) from Designated Microscopic Centre of RNTCP (Table 7). Figure 1, on statistical analysis association, was found highly significant ( $P < 0.001$ ).

Data collected for the assessment of trends and sero-positive of the attendees of ICTC in the years 2007, 2008 and 2009 were also analyzed and it was found out that the number of attendees tested at ICTC has shown an increasing trend from 2007 to 2009 (Figure 2). A similar trend was also noted for sero-positive of the attendees for the corresponding period diagram (Table 8).

### DISCUSSION

The number of attendees tested at ICTC has shown an increase every year from 2007 to 2009. Similarly, the

**Table 5.** Occupational profile of attendees and their sero-positivity status.

| Occupation              | Attendee |       | Sero-positive |        |
|-------------------------|----------|-------|---------------|--------|
|                         | No.      | %     | No.           | %      |
| House wife              | 212      | 12.42 | 17            | 26.98  |
| Labour/Farmer           | 607      | 35.58 | 10            | 15.87  |
| Driver                  | 89       | 5.22  | 16            | 25.34  |
| Rixa puller             | 26       | 1.52  | 1             | 1.59   |
| Student                 | 166      | 9.73  | 2             | 3.17   |
| Business                | 118      | 6.92  | 6             | 9.52   |
| Unemployed              | 77       | 4.51  | 1             | 1.59   |
| Government/ Private job | 268      | 15.71 | 5             | 7.7.94 |
| Police/CGPS             | 71       | 4.16  | 2             | 3.17   |
| Health personal         | 13       | 0.76  | 0             | 0      |
| Other                   | 59       | 3.46  | 3             | 4.76   |
| Total                   | 1706     | 100   | 63            | 100    |

$\chi^2 = 77.46$ , df = -10, P < 0.001 (Association significant).

**Table 6.** Pattern of risk behaviour and sero-positivity status of attendees.

| Risk behaviour    | Attendee |       | Sero-positive |       |
|-------------------|----------|-------|---------------|-------|
|                   | No.      | %     | No.           | %     |
| Heterosexual      | 34       | 1.99  | 21            | 33.33 |
| Parentally        | 2        | 0.12  | 0             | 0     |
| Spouse            | 1        | 0.06  | 1             | 1.59  |
| Blood Transfusion | 2        | 0.12  | 2             | 3.18  |
| Not known         | 1667     | 97.71 | 39            | 61.6  |
| Total             | 1706     | 100   | 63            | 100   |

$\chi^2 = 409$ , df = -4, P < 0.001 (Highly significant).

**Table 7.** Profile of referral of attendees and their sero-positivity status.

| Referral profile           | Attendee |       | Sero-positive |       |
|----------------------------|----------|-------|---------------|-------|
|                            | No.      | %     | No.           | %     |
| Doctor                     | 1132     | 66.35 | 23            | 36.5  |
| DWC (Directly)             | 429      | 25.15 | 27            | 42.86 |
| Family and spouse          | 38       | 2.23  | 9             | 14.29 |
| Microscopic Centre (RNTCP) | 91       | 5.33  | 4             | 6.35  |
| Others                     | 16       | 0.94  | -             | 0     |
| Total                      | 1706     | 100   | 63            | 100   |

$\chi^2 = 60$ , df = -4, P < 0.001 (Highly significant).

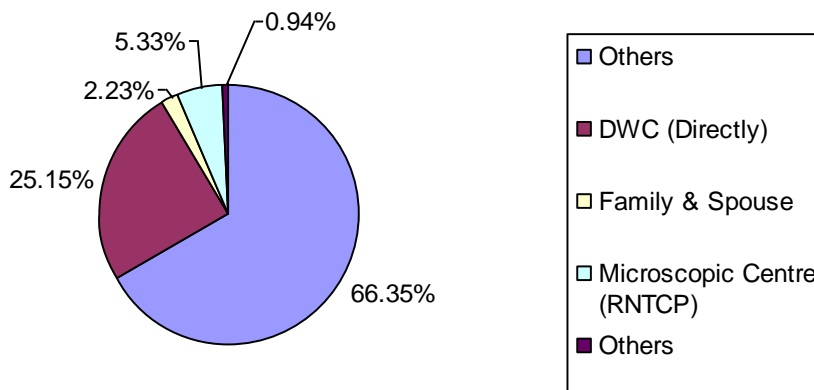
percentage of female attendees who were tested at ICTC also increased from 2007 to 2009. This may be because of increased awareness about HIV/AIDS or less stigma and greater urgency to get tested, because of Independent Ethics Committee (IEC) carried out for HIV/AIDS. Another reason may be increased access of testing services within their reach. But the main difference in male and female attendees for testing at ICTC

showed that female are still lagging behind their male counterparts in getting tested. This may be due to the status of women in the society. This factor needs greater attention in our IEC planning.

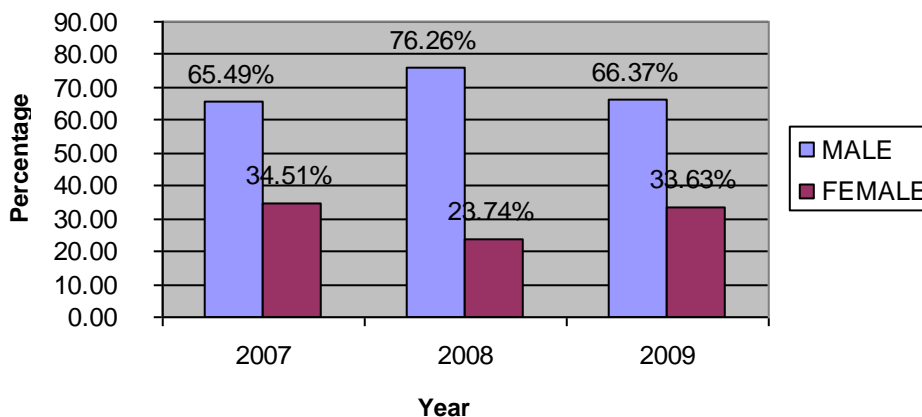
Findings of the study conducted by Joardar et al. (2006) and Jayaram et al. (2009) as per age and sex were more or less in conformity with the findings of the present study. Regarding marital status of the attendees,

**Table 8.** Trend of attendees and their sero-positivity status (2007-2009).

| Year | Attendee |       |        |       |       | Sero-positive |       |        |      |       |      |
|------|----------|-------|--------|-------|-------|---------------|-------|--------|------|-------|------|
|      | Male     | %     | Female | %     | Total | Male          | %     | Female | %    | Total | %    |
| 2007 | 911      | 65.49 | 480    | 34.51 | 1391  | 32            | 62.75 | 19     | 37.3 | 51    | 3.67 |
| 2008 | 1301     | 76.26 | 405    | 23.74 | 1706  | 38            | 60.32 | 25     | 39.7 | 63    | 3.69 |
| 2009 | 1419     | 66.37 | 719    | 33.63 | 2138  | 38            | 46.34 | 44     | 53.7 | 82    | 3.84 |



**Figure 1.** Source of referral attendees.



**Figure 2.** Sex-wise attendees that attended ICTC.

Vyas et al. (2009), Gupta (2009) and Jayaram et al. (2009) noted that majority of the attendees of both sexes were married, which was again in accordance with the findings of the present study. Those sero-positives who were unmarried are likely to get married in the near future, and then there will be a greater risk of mother to child HIV transmission.

In the present study, 2.88% of the sero-positives were illiterate while Jayaram et al (2009) found 2.6 and 3.0% in 2005 and 2006 illiterate sero-positive, respectively. This is

more or less similar to the findings of the present study.

In the present study, 55.56 and 44.44% of the sero-positives belong to urban and rural areas, respectively. The difference was statistically significant. It showed that (a) people residing in urban areas were more engaged in high risk behavior; (b) there are more testing facilities in urban areas and (c) IEC activities are more concentrated in urban areas. In future planning of IEC, we have to take into consideration the aforementioned findings.

Truck drivers constituted the second highest figures of

sero-positives in the present study, which is in accordance with the findings of Mishra et al. (2009), where they found out that truck drivers who remain out of their home for most of the time indulge in sexual activities with partners other than their spouses. Similarly, 9.52% of businessmen were found sero-positive. This could be because businessmen used travel for their business purposes and are thus away from their houses and have the chance to be engaged in extramarital sex. They can then get HIV and transfer to their wives at home, which are supported by the findings in the present study that found 21 married women sero-positives. It means that there is need of intensified IEC for this section of the society.

Heterosexual risk behaviour was noted as the most common mode of transmission of HIV/AIDS in the present study, which is again in conformity with the findings of the study conducted by Lal (2003) and Vyas et al. (2009).

### Conclusion

From the aforementioned observations and discussion, the authors reached the conclusion that, although HIV cases are on decline globally and nationally in India, it is increasing in the Tribal heartland. This needs greater attention and area-specific planning including from the IEC. Health behaviours of tribal peoples are different from those of their rural and urban counterparts. There is a wide gap between the knowledge and practices of the people, which is the matter of real concern. Every effort must be made to bridge this gap (Bansal and Garg, 2001). There is an urgent need for the proper management of information system (MIS), which play an important role in the collection, analysis and transmission of the information to persons in places where it is required within a shorter timeframe (Garg et al., 2001). For any health problems, people of this area approach Baiga-Guniya's (Local healers). In order for our efforts to be successful, the health providers have to intermingle with

these Baiga-Guniya's. Only then will we be able to penetrate this difficult-to-reach area.

### REFERENCES

- Agarwal AK, Agarwal A, Mahajan PC (1999). Knowledge Attitude and Practices of Medical Undergraduates about AIDS and Human Sexuality. *J. Ravi Shanker Uni.* 51-58.
- Bansal AK, Garg N K (2001). Information Education Communication in Context of Reproductive & Child Health Including HIV/AIDS; *J. Ravi Shanker Univ.* 14:28-34.
- Garg Narendra K, Bansal AK (2001). Management of Information System in Context of Health Care Delivery. *J. Ravi Shanker Univ.* pp. 35-40.
- Gupta M (2009). Profile of Clients Tested HIV Positive in Voluntary Counseling and Testing Centre of a District Hospital, Udumpi. *Indian J. Community Med.* 34(3): 223-226.
- Jayaram, Snenog, Shaling, Unnikristian B (2009). Profiles of Attendees in Voluntary. AIDS and Prediction of Future Trends in North West Region of India; A Six year ICTC Based Study. *India J. Community Med.* 34:212-217.
- Joardar JK, Shankar A, Chatterjee C (2006). Profiles of attendees in the voluntary counseling and testing centre of North Bengal Medical College in Darjeeling District of West Bengal. *Indian J. Community Med.* 31:237-40.
- Lal S (2003). Surveillance of AIDS Cases in India (editorial) *Indian J. Community Med.* 28(1):3-9.
- Mishra M, Shrivastava PK (2009). The Strategies of Combating HIV/AIDS. *Res. J. Sci. Technol.* 1(1):4-7.
- National AIDS Control Organization (2000). Voluntary counseling and Testing Manual. Ministry of Health and Family, Govt. of India, New Delhi. pp. 1-8.
- Park K (2007). Park's Text Book of Preventive and Social Medicine- A Treatise on Community Health, 20<sup>th</sup> Edition. M/S Banarsidas Bhanot Jabalpur, India. pp. 298-310.
- The Times of India (2010). All MP Districts to have AIDS Medical Centres. *The Times of India, New Delhi.* P 3.
- The Times of India (2009). Good News on HIV Front. *The Times of India, New-Delhi.* p. 6
- Vyas N, Hooja S, Sinha P, Mathur A, Singhal A (2009). Prevalence of HIV/ AIDS and Prediction of Future Trends in North-West Region of India; A six year ICTC based study. *Indian J. Community Med.* 34:212-217.