

## Original Article

# A Study on Profiles of Clients Attending an Integrated Counselling & Testing Centre of Tertiary Care Hospital in a Northern Hilly State, India

Tripti Chauhan<sup>\*1</sup>, A.K. Bhardwaj<sup>2</sup>, Anupam Parashar<sup>3</sup> and A.K. Kanga<sup>4</sup>

<sup>1</sup>Assistant Professor, Department of Community Medicine, Indira Gandhi Medical College, Shimla, Himachal Pradesh, India

<sup>2</sup>Professor and Head, Department of Community Medicine, RPGMC, Tanda, Himachal Pradesh, India

<sup>3</sup>Associate Professor, Department of Community Medicine, Indira Gandhi Medical College, Shimla, India

<sup>4</sup>Professor and Head, Department of Microbiology, Indira Gandhi Medical College, Shimla, India

\*Corresponding author e-mail: [thakurtripti2010@gmail.com](mailto:thakurtripti2010@gmail.com)

## ABSTRACT

**Objectives:** To study the socio-demographic characteristics, clinical profile and risk behaviours of HIV positive and HIV negative clients. **Settings and design:** This hospital based cross-sectional study was conducted in the Integrated Counselling and Testing Centres (ICTC) of a tertiary care hospital, Shimla. **Subjects & Methods:** A sample of 525 consecutive attendees in the age group of 15 to  $\geq 50$  years were included as study subjects. Their clinical presentations, Pulmonary Tuberculosis (PTB) and sites of Extra-pulmonary Tuberculosis (EPTB) were studied. A pretested questionnaire was used to collect a detailed history followed by a physical examination, eventually laboratory and radiological investigations were carried out appropriately. **Statistical analysis:** The data collected was analyzed using SPSS software version 16. **Results:** 37.7% were seropositives and 62.3% were seronegatives. Of the seropositives more affected were females, 53% than males, 47%. Wherein among seronegatives, male to female ratio was 2:1. Among seropositives, most common symptom presented was recurrent fever, 55.1% followed by cough, 39.4%, weight loss 23.7%, diarrhea, 22.2% and STDs, 20.2% as compared to seronegatives wherein recurrent fever was 48% followed by cough, 26.6% weight loss, 12.5% diarrhea 11% and STDs 6.7% ( $p < 0.001$ ). 17.7% of seropositives as compared to 10.1% of seronegatives were suffering from PTB infection ( $P < 0.006$ ). EPTB was observed in almost double the proportion, 24.2% of seropositives as compared to seronegatives, 12% ( $P < 0.0001$ ). **Conclusion:** ICTC services could make difference by integrated approach and addressing to all the needs.

**Keywords:** ICTC, HIV seropositives, Clinical symptoms, Pulmonary tuberculosis.

## INTRODUCTION

The human immunodeficiency virus (HIV) infection has grown out of proportions and contributed to escalation in tuberculosis (TB).<sup>1</sup> In the South-East Asia Region (SEAR), there are 4 million people living with HIV (PLHIV) with an adult prevalence of 0.3%, constituting nearly 11.8% of PLHIV globally and among them India is third in the world.<sup>2,3</sup>

It is estimated that, worldwide, 1.37 million new cases of tuberculosis (TB) occurred in HIV-infected persons with an estimated nearly half-million deaths due to TB in them. Globally, TB is one of the most frequent causes of mortality in HIV disease, accounting for an estimated one third of AIDS-related deaths.<sup>4</sup>

ICTCs, previously known as Voluntary Counselling and Testing Centres (VCTCs) provide key entry points for the continuum of care in HIV/AIDS for all sections of the population. Pre- and post-test counselling is among the standard components of prevention, addressing to psychological needs. It is an oriented HIV antibody testing program which has an important role in health care.<sup>6</sup> People can access accurate information about HIV prevention and care and undergo HIV test in a supportive and confidential environment. People who are found HIV negative are supported with information and counselling to reduce risks and remain HIV negative. People who are found HIV positive are provided psycho-social support and linked to treatment and care.<sup>7</sup>

Himachal Pradesh, being a hilly state, also striving to combat HIV-TB epidemic, eventually is able to generate data through sentinel surveillance & understanding the number of factors contributing to increase in the prevalence in

HIV & TB. HIV counselling and testing services were started in Himachal Pradesh in 1998. There are now more than 48 Counselling and Testing Centres. Under NACP-III, services are remodelled to provide services to all clients under one roof, recognizing, that most new infections in this state are among the younger population (18-24 years).<sup>8</sup> This study was aimed to have a baseline data on the socio-demographic characteristics, clinical profile and risk behaviours of the clients irrespective of their HIV status.

## MATERIALS AND METHODS

This study was first of its kind, conducted among the attendees of the ICTC of a tertiary care hospital at Shimla, Himachal Pradesh, India. All the attendees ( $N = 525$ ) who attended the ICTC consecutively were included as study subjects for a period of one year i.e; from January 2010 to Dec 2011. Although, being in a medical college, it runs two centres independently, for VCT and PPTCT which are referred as ICTC (general) in the vicinity and ICTC (PPTCT) in Kamala Nehru Hospital which is 3 Km away from this medical college. Ethical approval for the study was obtained from the institutional committee for ethical reasons of IGMCI, Shimla. Free and informed written consent was obtained from all the participants and confidentiality of information was maintained in accordance with the principles embodied in the declaration of Helsinki and the International Guidelines for ethical review of Epidemiological Studies. Inclusion Criteria: All the participants who were equal to and above 18 years and consented to participate, were included in the study. Exclusion criteria: All the

participants below 18 years were excluded from the study. A pre-tested structured questionnaire was administered to all such clients by the candidate. Each question was read out to the respondent and the response was taken in the appropriate boxes on the form. The questionnaire was filled by an investigator, and was not filled in part by study subjects and investigator. The questionnaire was designed in a manner to obtain a detailed history of every case including socio-demographic, present illness, past illness and family history. Further, a thorough physical examination of the patients was done by the investigator to detect any opportunistic infections, the presence of lymphadenopathy and then all the clients were tested for HIV infection as per the guidelines laid under HIV Testing Policy of Government of India. Both HIV-positive and HIV-negative cases irrespective to their serostatus were referred to DOTS center located in the same institution for the screening of TB as per standard RNTCP guidelines, during the study period. Sputum smear-negative patients were further subjected to a chest radiography (PA view), and the patients who had symptoms of extra-pulmonary TB were also screened by microbiological investigations, fine needle aspiration and cytology (FNAC) of enlarged and clinically palpable lymph nodes, pleural or ascitic fluid examination and abdominal ultrasonography (USG) in order to locate the site of the EPTB. Data analysis: The data collected was analyzed using SPSS software version 11.

## RESULTS

A total of 525 attendees were studied, 198(37.7%) were HIV positives and 327(62.3%) were HIV negatives (FIG 1). Out of total seropositives, 93(47%) were males & 105(53%) were females. Majority of the seropositives 85.5% were in the age group of 25-44 years. Among seropositives,

in males, 89.2% were married, only 1.1% were widowed whereas, in females, 67.7% were married and the distressing fact was that 36.2% were widowed. The seropositivity rate was highest among the housewives, 72(36.4%). The second highest positivity was found among the drivers, 59(29.8%) and these were all males.

In terms of self-assessment of risk, most of the interviewees considered themselves to be at low or no risk 22.2% and 72.7% in seropositives and seronegatives respectively. The pattern of risky behaviour showed that all the subjects responded to the questions. None of them were found to be homosexuals and intravenous drug users (IDUs), and the most common mode of transmission was unprotected heterosexual contact. Among seropositives, most of them 46.5% were having infected spouse, whereas 59 (29.8%) had unprotected sex with multiple partners; 40 (43%) of those who had sex with multiple sexual partners accepted to have had sex with commercial sex workers (CSW) and 1.5% had received blood transfusion as compared to seronegatives, 17.7% had unprotected sexual intercourse, 6.1% had infected spouse and 3.4% had received blood transfusion  $p<.00001$  (Table 2).

The clinical profile revealed that the patients presented to ICTC with the following symptoms: amongst sero-positives majority 55.1% had recurrent fever, followed by cough 39.4%, diarrhoea 22.2% & STDs 20.2% as compared to seronegatives, wherein 48% presented with recurrent fever, followed by 26.6% with cough, 11% with diarrhoea & 6.7% with STDs ( $p<.001$ ). However, symptoms of PTB showed that nearly 50% of seropositives were suffering from PTB symptoms in comparison to only, 28% of seronegatives. Among seropositives, most common symptom was cough for > 3 weeks, 40.4%, purulent sputum was produced,

33.8% and 23.2% were suffering from evening rise of fever as compared to 25.4% were having cough for > 3 weeks, 23.9% had production of purulent sputum and 12.8% had evening rise of fever in seronegatives (Table 3).

The frequency of TB revealed that among seropositives, 17.7% had PTB and 24.2% had EPTB: clinically, palpable involvement of lymph nodes was 17.7% and 4.5% meningeal as compared to seronegatives where PTB was found only in 10.1% and 12% of EPTB: 4.9% involvement of lymph nodes and 4.3% pleura ( $p < 0.0005$ ). Among seropositives, 27.3% were suffering from opportunistic infections; 16.7% had oral candidiasis, 11.6% were having oral ulcers, 2.5% *Pneumocystis carinii* pneumonia as compared to seronegatives only 4.6% had opportunistic infections with 2.8% Oral candidiasis & 1.8% oral ulcers ( $p < 0.00001$ ) (Table 4).

## DISCUSSION

The present study involved a total of 525 ICTC attendees, of whom, 37.7% were seropositives and the rest, 62.3% were seronegatives. On the contrary, another study reported, the seropositivity rate of 12.5% which was because of the reason of rural and private setting.<sup>9</sup>

Among seropositives, 47% were males & 53% were females; revealed that females contributed to high proportion of case load at the ICTC. Contrastingly, the study conducted in Karnataka showed just reverse results (52.5% were males and 47.6% were females).<sup>10</sup> Moreover, the national averages were lesser (38.4%) for females.<sup>11</sup> This increased rate of infection among females is a cause of concern; has the propensity to increase the transmission of HIV infection from mother to child proportionately. Among seropositives, majority, 73.7% were married, 19.7% were widowed and of these: only one was male

and rest were all females, this strongly suggests that married monogamous women are at greater risk from their husbands.

This study also suggests that the sexually active age group of 25-44 years was most commonly affected in both the groups: 85.8% of seropositives, which is lesser than the national figures (90%) and other studies (88.7%).<sup>10</sup> Simultaneously, low levels of literacy were obtained, where only about 8% were illiterates in both the groups. This was in contrast to the study where high proportions, 32% male and 45% female seropositives were illiterate.<sup>10</sup> In fact, literacy status from another study revealed none of the seropositive was educated up to 12<sup>th</sup> standard.<sup>12</sup> Moreover, in our study, only 3% of seropositives as compared to 15% of seronegatives were graduates and post graduates. From this it could be deduced, that literacy enhances knowledge, because of accessibility to the information and study material that in turn offers protection against HIV. Furthermore, seropositivity was highest among the housewives, 36.4% followed by drivers, 29.8% and among laborers/ cultivators 26.7%, indicating the penetration of HIV infection in the general population and most vulnerable group was among the females. These results were not consistent with the other study where the seropositivity was more among the manual laborers, followed by truck drivers.<sup>13</sup>

The pattern of risky behaviour showed that large percentage of attendees had sexual experience, 98.9% seropositives as compared to 82.2% seronegatives ( $p < .00001$ ). Heterosexual contact was the commonest mode of transmission. 63.4% seropositive males in comparison to only 10.5% seronegative males had sex with multiple partners. This difference was also statistically significant ( $p < .00001$ ). Out of those seropositive males who had multiple sexual partners, 43% in comparison to only, 4% seronegative males accepted to have had

sex with CSWs. The sexual contact was predominantly unprotected as the condom usage was almost nil. On the contrary, the study from Maharashtra reported sex with multiple Partners by 30% of seropositive males with 18% of condom usage, which is quite high<sup>14</sup> This study also reported history of blood transfusion in, 1.5% seropositives and 3.4% seronegatives, which is lesser than the other study where 5 seropositives gave a history of previous blood transfusion.<sup>10</sup> But it is a fact that in India, contaminated blood and blood products account for about 2% of HIV infections.<sup>15</sup> In our state the screening of blood is mandatory and strictly followed resulting in almost negligible reports of HIV infection through contaminated blood and blood products. Clinical profile showed that among the seropositives most common symptom was recurrent fever 109 (55.1%), followed by cough 78 (39.4%), diarrhoea 44 (22.2%) and STDs 40 (20.2%). Similarly among seronegatives also majority had recurrent fever 157(48%) followed by cough 87 (26.6%), diarrhea 36 (11%) and STDs 22 (6.7%)  $p < 0.001$  (Table3). These findings are consistent with the study conducted in Eastern U.P where fever (70.6%), weight loss (53.3%), chronic diarrhea (43.9%) were the common presenting symptoms in seropositives.<sup>16</sup> Whereas, fever, cough and weight loss were found to be equally common in both HIV positive and HIV negatives in a study conducted in Kenya Nairobi.<sup>17</sup>

In this study, two-thirds of HIV seropositives were suffering from the symptoms of Pulmonary Tuberculosis (Table 3) as compared to less than half of HIV negative subjects ( $p < 0.00002$ ). Among seropositives, majority had cough for more than 3 weeks 80 (40.4%) followed by those who had production of purulent sputum 67 (33.8%), as compared to seronegatives where 83 (18.6%) had Cough for >3 weeks, followed by 78 (17.5%)

suffered with production of purulent sputum. Similarly, another study reported, fever and cough with expectoration being most common presenting symptoms.<sup>18</sup>

In this study, EPTB was the commonest infection among seropositives, 24% whereas 12% in seronegatives and this difference was statistically significant ( $p < .0005$ ). However, among seropositives, 17.7% had lymphadenopathy, followed by meningeal involvement in 4.4% as compared to only 4.8% reported to have had lymphadenopathy; pleural TB 4.2% in seronegatives. Another study reported higher results where 35.3% seropositives were suffering from EPTB.<sup>19</sup> Furthermore, 17.7% of seropositives were suffering from PTB infection as compared to only 10.1% of seronegatives, with the statistically significant difference ( $p < 0.006$ ). These findings were much lesser than the findings of other studies conducted in Banaras and Kolkata. As far as other opportunistic infections (OIs) were concerned 27.3% seropositives as compared to only <5% seronegatives were suffering from OIs ( $p < 0.00001$ ). Most commonly reported infection among seropositives and seronegatives was oral candidiasis (16.7% & 2.8% respectively) followed by oral ulcers (11.6% & 1.8% respectively). Reports from other study showed (62.7%) lymphadenopathy and (54.9%) oral thrush among seropositives and showed that seropositivity leads to increased vulnerability of HIV infected persons to opportunistic infections.<sup>20</sup> To lessen the huge impact of this disease on the general population & health infrastructure of this part of the country there is need to address deficiencies in health facilities.

## CONCLUSION

Our findings suggest that ICTCS have an impact on the prevention of HIV

and there is a need to address low literacy, limited access to the health facilities.

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**Table 1.** Socio-demographic characteristic of study subjects (n=525)

Characteristics	HIV positive (n = 198)	HIV negative (n = 327)
15-24	14 (7.1)	69 (21.1)
25-44	170 (85.8)	220 (67.3)
45-50	14 (7.1)	38 (11.6)
<b>Literacy Status</b>		
Illiterate	17 (8.6)	65 (19.9)
Primary	96 (48.5)	90 (27.5)
Matriculation	63 (31.8)	81 (24.8)
Secondary	16 (8.1)	41 (12.5)
Graduate and Postgraduate	6 (3.0)	50 (15.3)
<b>Marital Status</b>		
Married	146 (73.8)	226 (69.1)
Unmarried	9 (4.5)	86 (26.3)
Widowed	39 (19.7)	15 (4.6)
Divorced	2 (1)	0 (0)
Living Together	2 (1)	0 (0)
<b>Occupation</b>		
Student	1 (.5)	25 (7.6)
Driver	59 (29.8)	36 (11)
Professionals	13 (6.6)	63 (19.3)
Housewife	72 (36.4)	62 (19)
Laborers/Cultivators	53 (26.7)	141 (43.1)

Figures in parenthesis denote percentages

**Table 2.** Risk factors followed by the subjects

Risk Behaviour	HIV positive (n = 198)	HIV negative (n = 327)	P value
Not at risk	44(22.2)	238(72.8)	p < .00001
Heterosexual	59(29.8)	58(17.7)	
Homosexual	0(0)	0(0)	
Blood and blood products	3(1.5)	11(3.4)	
Spouse infected	92(46.5)	20(6.1)	

Figures in parenthesis denote percentages

**Table 3.** Clinical profile of the study population

Presenting symptoms*	HIV positive (n = 198)	HIV negative (n = 327)	P value
Recurrent fever	109(55.1)	157(48)	p < 0.001
Cough	78(39.4)	87(26.6)	
Diarrhoea	44(22.2)	36(11)	
STDs	40(20.2)	22(6.7)	
<b>Pulmonary TB*</b>			
Had PTB	35(17.7)	33(10.1)	p < 0.006
Cough for >3 weeks	80(40.4)	83(25.4)	p < 0.00002
Production of purulent sputum	67(33.8)	78(23.9)	
Haemoptysis	6(3)	6(1.8)	
Evening rise of fever	46(23.2)	42(12.8)	
Weight loss	7(3.5)	1(.3)	

Figures in parenthesis denote percentages  
Multiple responses\*

**Table 4.** Distribution of EPTB and OIs among patients

Extra pulmonary TB*	HIV positive (n = 198)	HIV negative (n = 327)	P value
Had EPTB	48(24.2)	39(12)	p<0.0005
Pleural	3(1.5)	14(4.3)	
Lymphadenopathy	35(17.7)	16(4.9)	
Meningeal	9(4.5)	9(2.8)	
Abdominal	3(1.5)	3(.9)	
Caries spine	1(.5)	0(0)	
Laryngopharyngeal	0(0)	1(.3)	
<b>Opportunistic infections*</b>			
Had Infections	54(27.2)	15(4.6)	p < .00001
Oral candidiasis	33(16.7)	9(2.8)	
Oral ulcers	23(11.6)	6(1.8)	
Lichen planus	2(1)	0(0)	
Cryptococcal meningitis	1(.5)	0(0)	
Pneumocystiscarinii pneumonia	5(2.5)	0(0)	

Figures in parenthesis denote percentages  
Multiple responses\*

