

# Seroprevalence of Human Immunodeficiency Virus Among Antenatal Women in One of the Institute of Northern India

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## ABSTRACT

**Introduction:** As per NACO publication there are an estimated 2.08 Million HIV/AIDS cases in India as of February 2014. The estimated adult HIV prevalence in India is 0.27%, with a gender split of 0.32% males and 0.22% females. Estimating the seroprevalence of HIV in a low risk population such as pregnant women provides essential information for an effective implementation of AIDS control programmes. In spite of an estimated adult HIV prevalence rate of 0.18% in Punjab, there are no previous studies among antenatal women to assess seroprevalence.

**Aim:** To assess the prevalence of HIV infection, among otherwise healthy pregnant females.

**Materials and Methods:** This retrospective study reviewed treatment records of 3686 antenatal women who underwent HIV testing. Demographic, obstetric and laboratory data was

recorded into a preset proforma. Available data was analysed using SPSS version 13.

**Results:** Total of 38 subjects tested positive for HIV infection. Seroprevalence rate was 1.03%. A 25 -30 years age group had most number of infected individuals with 22 (57.89%) subjects. Seropositivity was common among rural domicile. Only 9 (23.68%) was aware of their seropositive status. A total of 20 (52.63%) subjects were illiterate, 14 (36.84%) had received primary school education.

**Conclusion:** Seroprevalence rate of 1.03% reported in this study has been the highest among the contemporary articles published in last decade. Efficient surveillance along with proper implementation of Prevention of Parent to Child Transmission (PPTCT) is the need of the day. A prompt action at the hands of the authority will enable us to safeguard our present and future alike.

**Keywords:** Acquired immunodeficiency syndrome, HIV seroprevalence, Pregnancy

## INTRODUCTION

Though India is categorized as low HIV prevalence nation, it has the third largest number of people living with HIV/AIDS [1]. NACO reports an estimated 2.08 million HIV/AIDS cases in India as of February 2014, of which 39% are females and 3.5% are children. The estimated adult HIV prevalence in India is 0.27%, with a gender split of 0.32% males and 0.22% females. In Punjab, estimated adult HIV prevalence is reported to be 0.18%, with 39625 HIV positive cases reported (1993 to Feb 2014) from Integrated Counseling and Testing Centers (ICTC) [2].

HIV data from antenatal women has been used to monitor trends in the general population and to predict the seroprevalence in young children [3,4]. UNAID (The Joint United Nations Programme on HIV/AIDS) reports reveal that mother-to-child transmission is the largest source of HIV infection among children below the age of 15 years. The parent-to-child transmission occurs in approximately 25 to 35% of HIV positive women, which accounts for 4% of the total HIV infection load in India [5]. To the best of our knowledge this is the first study of its kind attempting to assess the seroprevalence of HIV in antenatal females from Punjab.

HIV can be transmitted vertically through the placenta, exposure to vaginal fluids at the time of labor and through breast milk. Pooled data from various cohort studies conducted prior to preventive interventions, estimated the risk of in utero transmission to be approximately 10%, intrapartum transmission to be 15% and postpartum transmission to be between 10 and 15%. With effective PPTCT program, the risk of vertical transmission of HIV in children can be decreased to less than 2% [6].

## MATERIALS AND METHODS

This retrospective study reviewed treatment records of 3686 antenatal women who underwent HIV testing in our institution between 1<sup>st</sup> March 2013 and 28<sup>th</sup> February 2014. Demographic, obstetric and laboratory data was recorded into a preset proforma. Available data was analysed using SPSS version 13.

## RESULTS

A total of 38 subjects tested positive for HIV infection. Seroprevalence rate was 1.03%. A 25-30 years age group had most number of infected individuals with 22(57.89%) subjects [Table/Fig-1]. Seropositivity was common among rural domicile with 0.93% prevalence rate [Table/Fig-2]. Only 9 (23.68%) were aware of their seropositive status. A total of 20 (52.63%) subjects were illiterate, with a prevalence rate of 0.87% [Table/Fig-3]. A total of 24 (63.25%) were housewives with a prevalence rate of 0.89% [Table/Fig-4].

Age Group	Total	Frequency (n)	Prevalence %
18 – 25 years	1322	12	0.90%
25 – 30 years	1817	22	1.21%
30 – 35 years	547	4	0.73%

**[Table/Fig-1]:** Frequency and seroprevalence based on age distribution among hiv positive subjects.

Domicile	Total	Frequency (n)	Prevalence %
Rural	2876	27	0.93%
Urban	810	11	1.35%

**[Table/Fig-2]:** Frequency and seroprevalence based on domicile among hiv positive subjects.

Literacy	Total	Frequency (n)	Prevalence %
Illiterate	2287	20	0.87%
Primary school education	1026	14	1.36%
Secondary school education	311	3	0.96%
Graduation and above	62	1	1.61%

**[Table/Fig-3]:** Frequency and seroprevalence based on literacy among hiv positive subjects.

Occupation	Total	Frequency (n)	Prevalence %
Housewife	2678	24	0.89%
Labourer	878	12	1.36%
Service	130	2	1.53%

**[Table/Fig-4]:** Frequency and seroprevalence based on occupation among hiv positive subjects.

## DISCUSSION

The average HIV prevalence among women attending antenatal clinic in India is 0.48% as per NACO annual report 2010-2011 [1]. The present study revealed a prevalence rate of 1.03%. Different authors have reported different seropositivity rates, ranging from 0.16% to 0.88%. Parmeshwari et al., from Namakkal District reported a seroprevalence of 0.7% among antenatal women [7]. The Rajasthan State AIDS Control Society (RSACS) reported 0.1–0.2% seropositivity over a period of five years (2006–2010) [8]. A Tamil Nadu sentinel surveillance showed that a median positivity rate of HIV infection among antenatal women was 0.65% in 2004 and 0.5% in 2005. HIV sentinel surveillance conducted by Maharashtra State AIDS Control Society (MSACS) revealed a decline in seropositivity among antenatal women from 1.25% (2005) to 0.75% (2006–2007) in urban areas [1]. [Table/Fig-5] describes recent studies about seroprevalence of HIV among antenatal women. While studies conducted at Miraj and Bombay in Maharashtra and Manipur have reported a much higher seropositivity of 4.5, 2.5 and 0.8%, respectively [9].

Study	Location	Seroprevalence
Parameshwari et al., (2009) [7]	Namakkal, TN	0.70%
Gupta et al., (2007) [10]	AIIMS, New Delhi	0.88%
Devi et al., (2012) [11]	Renga Reddy Dist, AP	0.45%
Chaudhuri et al., (2007) [12]	Kolkata, WB	0.16%
Ashtagi et al., (2011) [13]	Belgaum, Karnataka	0.70%
Dash et al., (2012) [14]	Berhampur, Orissa	0.66%
Kulkarni et al (2013) [15]	Nanded, Maharashtra	0.76%
Mehta et al., (2013) [16]	Jamnagar, Gujarat	0.38%
Kwatra et al., (2011) [17]	Ahmednagar, Maharashtra	1.38%
Ukey et al., (2005) [18]	Nagpur, Maharashtra	1.38%
Present Study (2016)	Patiala, Punjab	1.03%

**[Table/Fig-5]:** Review of literature – seropositivity of HIV in India.

## LIMITATION

In general, processes such as increased urbanisation, migration and education are likely to influence patterns of spread of HIV. HIV prevalence differs greatly according to location (eg. urban and rural) and further coverage and utilisation of health services. Studies have observed large differences in HIV prevalence in

various provinces and districts within the same country. Overall representativeness of sentinel sites is always an issue. There may be differences in sexual behaviour or in traditional practices. There are variations in the specificity of HIV kits.

## CONCLUSION

During pregnancy the risk of transmission of HIV from mother to baby is 5 to 10% and during labor delivery it was reported to be 10-15%. Early identification and management as per PPTCT guidelines can decrease the transmission of HIV from mother to child.

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