INTRODUCTION: In India, HIV was first detected in 1986. Since then there has been a steady increase in the prevalence of HIV infection. National AIDS Control Organisation recorded a drastic increase in the prevalence level of HIV from 3.97 million in 2001 to 4.58 million cases in 2002. The prevalence of HIV infection varies greatly between and within states in India. States like Andhra Pradesh, Karnataka, Maharastra, Manipur, Nagaland and Tamil Nadu are considered as high HIV prevalence states where the level of prevalence among high-risk groups is five percent or more and one percent or more in low risk group (antenatal women). The heterosexual relations is the most common route of HIV transmission except north-eastern states where needle sharing injecting drug use accounts for larger proportion of HIV cases. India, unlike other most other countries, has multiple epidemics in different geographical settings and among different people with different types of risks. Thus, a better understanding on the region specific risk factors for HIV has policy relevance to India.

In the past, HIV infection was considered to be prevalent only among highly vulnerable groups and is now percolating into the general population through bridge populations. The spread to the general population is evidenced by the rising incidence rate among women attending antenatal clinics. Therefore, knowledge on the routes of HIV transmission in general population deserves high priority since earlier studies are confined to high-risk groups. The transmission dynamics of HIV infection includes biological, behavioural, social, economic, cultural, environmental and political dimensions. Studies have shown that socioeconomic, cultural and demographic factors mediate their effect on HIV transmission only through a set of intermediate factors. Early studies explored the sexual behaviour and AIDS related knowledge, attitude and practice among the target populations like female sex workers, truck drivers and college or university students. Some of the studies examined the socio-cultural contexts of sexual behaviour and directly linked them with HIV infection. In Indian context, no study have analysed the influence of socio-economic factors on the spread of the HIV using intermediate factors. Therefore, the present study attempts to quantify the effect of intermediate variables on possible transmission of HIV infection in a high prevalence state viz. Tamil Nadu. Then the effects of socio-economic factors on the intermediate variables are to be established. It is only through identification of socio-economic determinants that influence the intermediate variables and quantification of the effects of intermediate determinants on the risk for HIV, effective programmes could be chalked out to contain HIV/AIDS.

METHODS: Number of frameworks has been suggested to analyse the determinants of HIV infection. The present study makes use of the framework proposed by Awusabo-Asare which incorporates all the modes of disease transmission and distinguishes the intermediate variables through which socioeconomic determinants affect the exposure to HIV infection. This paper is based on a case-control study on socioeconomic determinants of HIV/AIDS conducted for doctoral research. As the proportion of people living with HIV/AIDS in general population is very small; it requires a very large sample to obtain sufficient number of HIV/AIDS patients, if we use a sample from the general population. Hence, a *case-control study* was carried out to understand the potential risk factors that contribute for the spread of HIV infection.

The large variations in the prevalence level of HIV among Indian states with rarity of such cases in most of the states calls for the selection of high HIV prevalence state, Tamil Nadu. Within the state, Erode District was purposively selected. As it is difficult to interview women respondents by a male interviewer on this sensitive area, it was decided to restrict the study to

men in Erode district of Tamil Nadu state in southern India. The sample size was determined using the scheme proposed exclusively for case-control studies.

The cases are clinically proven HIV positive men between the ages 20 and 50 and are selected from a medical facility located in Erode district. Of the 223 patients selected and subjected to interview, 213 have completed the interview thus case group constitutes a sample size of 213. The controls are men who are free from HIV infection in general population. Since it is a matched case-control study; matched controls were selected for age (± 5 years of actual age of cases), place of residence (rural, urban and municipal area) and marital status (unmarried, married, widowed, divorced and separated) of the cases. Controls were selected using, a stratified, multistage sampling. Since the cases and controls are matched on 1:1 ratio, the control group comprises a sample size as that of cases. Among the 213 cases selected, a total of 207 men in general population were successfully interviewed. Thus, the study analysis was restricted to responses from 207 cases and 207 controls.

The pretested interview schedules were used collect information on socioeconomic and demographic characteristics, sexual and non-sexual risk behaviours among cases and controls. The study was conducted during January 2002 to December 2002. The Chi-square test was used to examine the difference between cases and controls with respect to socioeconomic and demographic characteristics and multivariate techniques, logistic and multinomial regression analyses were performed to examine the effect of explanatory variables on dependant variables.

RESULTS: The description of background characteristics shows that cases and controls are similarly distributed on demographic characteristics since matched controls were selected for place of residence, age and marital status of the cases. The level of literacy is significantly higher among men in control group. The past history of travel among cases when compared to controls is more common especially long-distance travel. Cases are significantly more likely to travel frequently and stayed in public places like lodge, vehicle itself or at work place while out of home during travel. Truck driving is the single most common economic activity among men in case group whereas among men in control group it was sales and services with out travel. In addition, a good proportion of cases found to be engaged in occupations involving travel than controls. Although the median income is higher for men in case group, other indicators such as housing conditions, and ownership assets suggest that controls have slightly better standard of living. The prevalence of anaemia was uncommon both among the cases and controls.

As expected, cases are more likely than controls to engage in high-risk behaviours. The heterosexual relation with multiple partners was the most common risk factor prevalent both among the cases (82 percent) and controls (33 percent). The homosexual orientation and injecting drug use was relatively less prevalent. In this study a maiden attempt has been made to address the non-commercial component of sexual net working as the heterosexual relations remains major route of HIV transmission in India. By and large, 30 percent of men in control group (men in general population) reported having had sexual relation with steady and/or casual partners. The level of condom use found to be very low in this study population. However men especially in control group were more likely to use condom during sexual intercourse with female sex workers when compared to non-commercial partners.

In order to identify the predominant mode of HIV transmission, first the effect of intermediate variables, biological and behavioural, on risk of HIV infection was examined. The logistic regression analysis strongly reveals that the intermediate variables, the past history of sexually transmitted diseases, past history of blood transfusion, condom use and number of

lifetime sex partners have significant effect on HIV infection. Relative Risk estimates also indicates that men who exposed to risky behaviours have greater chance of acquiring HIV infection particularly those who have experienced STD in the past and who inconsistently used condom and having 11 or more sexual partners. It is clear that the past history of STD and inconsistent use of condom and multi-partner sexual relations are the dominant factors that contribute to the spread of HIV in the study population. Though past history of blood transfusion shown significant effect on HIV, its prevalence is too small in this population.

Multivariate analysis clearly indicates that socioeconomic characteristics have bearing on behaviour that could transmit HIV. High level of income, staying in public places like lodge, vehicle itself, or at work place, consumption of alcohol and/or drugs during or prior to sexual relation increases the chance of having been infected with STD. Low level of education and consumption of alcohol and/or drugs prior to sex significantly influences sex with menstruating women other than wife. The selected socioeconomic characteristics do not show any effect on exposure to contaminated blood or blood transfusion. Multinomial regression analysis again show that the low level of education and income, staying in public places, exposure to pornographic movies, substance use, have significant effect on inconsistent condom use and number of sexual partners even after controlling for other socioeconomic and demographic variables.

CONCLISIONS: Overall, the unprotected heterosexual relation with multiple partners found to be most common risk factor for HIV transmission in the study population. The higher incidence of past history of sexually transmitted diseases, particularly ulcerative ones, increased the risk of acquisition of HIV infection. The results of this study highlight the existing indiscriminate casual sexual relations exist in the society and use of condom seems to be rare in such relations. This implied the conditions conducive for rapid spread of the epidemic in general population. As the epidemic has already started spreading into the general population and seems to be spreading rapidly in some of the states including Tamil Nadu, effective prevention strategies have to chalk out immediately. Near universal absence of homosexual orientation and intravenous drugs use indicates the rarity of such events in the study area, which is not uncommon only in large cities.

The most noteworthy finding may be that pertaining to stay during travel suggested that all mobile populations are not risk of HIV infection. It is only those who are staying in public places like lodge, vehicle itself or at workplace where they have little or no control over their behaviour and hence engaged in high-risk behaviours. In addition, men with lower level of education and those who have the habit of using alcohol or drug are at increased risk of HIV through their sexual relation with casual and female sex workers, inconsistent or non-use of condom and through sex with menstruating partner which exposed them to contaminated blood. To have an impact, AIDS prevention strategies must bring about changes in at least one of the intermediate determinants of HIV epidemic by properly addressing the socio-economic causes.