

## **Awareness Level of Married Couples on HIV/AIDS in Northeast India – An Empirical Analysis**

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## **Awareness Level of Married Couples on HIV/AIDS in Northeast India – An Empirical Analysis**

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### **Abstract**

**Background:** Acquired Immunodeficiency Syndrome (AIDS) is a complicated disease that can pass on from person to person and can damage the human body's immune system. Thus, the victim remains susceptible to various other infections. Since appropriate cure for the disease is yet to be available so the better way of avoiding the disease is to eliminate the risk of developing it. The Northeast India is the eastern most part of India and consists of eight states viz. Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The region is faced with a critical problem of HIV/AIDS and is spreading like wild fire (Srinivasan, 2003).

### **Objectives:**

- (i) To measure the impact of education of both husband and wife and residential type on the knowledge about the transmission of HIV in the North Eastern Region (NER).
- (ii) To compare the knowledge regarding transmission of HIV among the rural and urban people of the North Eastern Region (NER).

**Data and Methodology:** Data has been taken from the Reproductive and Child Health Survey –II (RCH II) conducted by the Government of India in 2005. Information about five variables like, State, Type of residence, Husband’s education, Wife’s education and Awareness of AIDS (which is considered as the dependent variable) was used. The respondent's awareness about HIV/AIDS were divided into two categories viz. complete knowledge (1) and misconception (0), which is decided by the answers of the respondents to some simple questions on HIV/AIDS. Since the dependent variable is binary so binary logistic regression was used to reach the results.

**Results/Findings:** The misconception of the people about HIV/AIDS is more in the northeast India than those with complete knowledge. As expected, the awareness level is less amongst the rural people compared to their urban counterpart. However, in Manipur where the prevalence of HIV cases is high, more people have complete knowledge about HIV/AIDS. The men with education, has more chance of having complete knowledge about the disease which is however not the case with women. This is true for both rural and urban women of the region.

**Conclusion:** The finding that for women the difference between the percentage of people with complete knowledge about HIV/AIDS amongst those with education and those without education (both rural and urban female population), is negligible– needs proper attention. It means that even education of women of the North East India does not play a significant role to do away with the misconception that they have about HIV/AIDS. Thus, special program are to be designed to enhance the awareness of women about HIV/AIDS.

**Key Words:** HIV/AIDS, Logistic Regression, Health Awareness

## **Introduction**

At the initial stage, the victim of AIDS were generally male homosexual, but later on it was established that the people who used un-sterilized needles to inject drug to their body, people who had been transfused blood, females whose male sexual partners were infected with AIDS, children of such parents. Till 1989, hetero sexual attachment was believed to be safe from AIDS, but it was then found that such sex acts as careers of AIDS virus, as in that year about 90 percent of the cases recorded were found to be originated from heterosexual involvement (Compton's Interactive Encyclopedia: 1999). It is possible for people to avoid high risk behavior or to engage in low or safe behavior practicing condom use while engaging in potential risky sexual activities, to clean / bleach / sterilize needle and syringe before using/ sharing; otherwise to use disposable needle and syringe for injection and to receive only tested certified blood for blood transfusion. Therefore, to reduce the risk of HIV infection the only priority is the prevention of HIV infection (Keithellakpam: 1999).

Twenty five years ago the first HIV infected patient was diagnosed in India but after that the rate in which HIV/AIDS infection has spread in the country is alarming. India homes the fourth largest population suffering from AIDS. As per report of National Aids Control Organization (NACO), a semiautonomous organization under the Ministry of Health, the estimate of India's population living with HIV is 2.31 million in 2008. The number showed a diminishing pattern compared to the previous figure of 2.73 million in 2002. Even then, some of the north eastern states of India have high prevalence rates like Manipur (1.57 %), Mizoram (0.75 %) and Nagaland (0.6 %) as per NACO Report of 2007, mainly because of injecting drug use.

The main sculpt of HIV pretension in developing countries is the ABC model, which is based on three pillars: abstinence, faithfulness, and condom use (Araujo: 2008). However, the success of the model depends on the awareness of the citizens. In India, discussions about sex remain off-limits in most households, in schools, colleges and even in institutes of higher learning. Traditionally, most Indian health officials and the health care establishments viewed HIV as a "foreign" disease or an "imported" infection, confined to people returning from foreign countries or port cities and to marginalized groups such as sex workers and drug users and unlikely to spread to the general population (Mitra: 2004). However, the reduction of risk of the disease can only be done if the people, at large, are aware of the reasons that may lead to HIV infection. Several steps are taken by government, semi-government and other voluntary organization to arouse public awareness related to the disease.

The North-Eastern region (NER) of India comprises of seven states, *Assam, Arunachal Pradesh, Manipur, Meghlaya, Mizoram, Nagaland, Sikkim* and *Tripura*, and has been described as the most diverse, complex and resourceful region of the country (Agarwal, 1997). Whereas the vast region accounts for nearly 7.8 percent of India's total land area (262230 sq. km.), the population density is indexed by approximately 151 persons per sq. km (Census, 2001). The hilly terrains have naturally divided the population into different cultures, religions, languages and traditions. The geographical isolation also hinges on lack of infrastructural development, leaving a narrow corridor to connect the NER states with the rest of the country (Agnihotri, 2004; Kumar, 2002). In the region, language has always remained a barrier for communication. There are around 420 languages and dialects of different language families that make North East India a different socio-linguistic area (Samuel, 1993). Thus, a uniform language for promoting awareness about the disease would not produce mass impact. The campaign in print and electronic media should be in different languages and hence not only the central government but also the state and local governing bodies should have to play their role in raising the awareness of the people about HIV infection by bringing about campaigns in different local languages.

The present paper looks into the awareness level among the married couples of the different states of North East India using different statistical tools and compares the awareness level of various cross-section of the said population. The remainder of the paper is organized as follows. The next section discusses the relevant literature. Section 3, 4 and 5 describes the objective of the study, data and methodology

respectively. Section 6 provides the results of the study and the last section concludes the paper highlighting the major findings.

## **Review of Literature**

Studies related to the spread of HIV-AIDS in the North Eastern region of India and the awareness level of the disease amongst the masses are rare and far between. A few such studies include Keithellakpam (1999), Mitra (2004), Cohen (2004), Panda (2002). The initial concerns that HIV/AIDS may come out as a serious pandemic in India was expressed in the works of Ghosh (1986), Piot and Over (1993). On awareness about the disease, Bharat, Aggleton, and Tyrer (2001) using data from Mumbai conclude that HIV/AIDS denial and stigma are very high in India reaching hospitals, place of employment, schools, and even families. Ambati, Ambati, and Rao (1997) using data from educated individuals in southern India conclude that this subgroup of the population have very good knowledge about the disease and support policies to increase AIDS awareness in the population; however, stigma was still found to be somewhat high. Godwin (1998) concludes that AIDS remains widely misunderstood due to strong national cultural taboos and a lack of education. Mitra (2004) finds that in India stigma and misconceptions, coupled with complicated social norms and conservative attitudes toward sex, make it difficult for politicians and policymakers to get beyond taboos when responding to the epidemic. Araujo (2008) shows that knowledge about AIDS in the population is actually very low, but increases with education and wealth. For some recent literature related to cross-sectional studies on HIV infected patients in India one may read Srikanth and others (2010).

## **Objective of the Study**

Knowledge is all that a person knows. It is having an understanding of something or whole – many be material or immaterial. It can be acquired through others experience or by own experience. However, misconception is wrong knowledge of something or whole of animate or inanimate. It may be due to lack of scientific approach of understanding or pre-conceived idea, which compels one not to have clear approach to know something. The paper is thus designed keeping in view the following objectives:

- (i) To study the knowledge on HIV-AIDS among the married couple of North Eastern Region (NER).
- (ii) To measure the impact of education of both husband and wife and residential type on the categorical value of the knowledge about the transmission of HIV.
- (iii) To compare the knowledge regarding transmission of HIV among the rural and urban people.

## Data and Methodology

Data has been taken from the Reproductive and Child Health Survey (RCH II) in 2005. The variables considered in this study are:

- (i) State
- (ii) Type of residence (Rural = 0, Urban = 1)
- (iii) Husband's education ( Ability to read and write = 0, Inability = 1)
- (iv) Wife's education ( Ability to read and write = 0, Inability = 1)
- (v) Awareness of AIDS (Misconception = 0, Complete Knowledge = 1), which is considered as the dependent variable.
- (vi) Respondent's perception about one can get HIV/AIDS from someone who has HIV/AIDS by :
  - (a) shaking hands with him/her;
  - (b) hugging with him/her;
  - (c) kissing with him/her;
  - (d) sharing clothes with him/her;
  - (e) sharing eating utensils with him/her;
  - (f) stepping on urine or stool of that person;
  - (g) bites of mosquito, flea or bedbug.

If a respondent provides correct answer to all the responses from (a) through (g), then the respondent is considered to have complete knowledge, else the respondent is supposed to have misconception. Thus the awareness level of the respondent is divided into two heads either the respondent has misconception about HIV/AIDS or has complete knowledge. As discussed 'Awareness of AIDS' can be represented by a dummy variable that has the value '1' if the individual has complete knowledge and '0' in case of misconception. The study was performed on 25044 individuals. The composition of the sample is shown in table 1.

The logistic regression model proposed by Kleinbaum and Klein (2002), has been used for the study. Let  $Y$  be the response variable, which is dichotomous variable providing information about the respondent's knowledge about the transmission of AIDS,

Where

$$Y = \begin{cases} 0, & \text{misconception about the transmission of AIDS,} \\ 1, & \text{complete knowledge about the transmission of AIDS} \end{cases}$$

Then

$$P(Y = 1) = 1 - P(Y = 0)$$

Here  $P(Y = 1)$  must lie between 0 and 1, but predicted value may be less than 0 or greater than 1.

Thus the probability that a person having complete knowledge is given by

$$P(Y = 1) = \frac{\exp(a + b_1x_1 + b_2x_2 + b_3x_3)}{1 + \exp(a + b_1x_1 + b_2x_2 + b_3x_3)} \quad \dots(1)$$

More conveniently it can be written as

$$P(Y = 1) = P(Y = 1 | (X_1 + X_2 + X_3)) = P(X),$$

Where  $X = (\text{Education of husband, Education of Wife, Type of residence})$

Thus,

$$\text{logit } P(X) = a + b_1 \text{ Education of Husband} + b_2 \text{ Education of Wife} + b_3 \text{ Type of Residence}$$

## Results

Table 1 below shows the composition of the sample. It classifies the respondents belonging to the different states classified by their awareness level about the disease viz. Misconception or Complete Knowledge as well as by the type of residence viz. Rural or Urban.

Table 1: State wise classification of the individuals considered under RCH-II classified by Type of residence and awareness level

Type	Awareness level of transmission of AIDS	Counts							
		Arunachal Pradesh	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Sikkim	Tripura
Rural	Misconception	1331	3041	1654	1388	780	2060	888	431
	Complete Knowledge	1096	1339	2135	429	241	740	427	195
	Total	2424	4380	3789	1817	1021	2800	1315	626
Urban	Misconception	743	714	340	268	575	812	119	43
	Complete Knowledge	804	685	556	266	400	257	166	44
	Total	1547	1399	896	534	975	1069	285	87

From Table 1, it can be seen that in the rural area the proportion of the population with misconception about HIV/AIDS is more compared to the people with complete knowledge. This is true for all the states except for Manipur where more people are found to have complete knowledge. However, in the urban area more people seems to have complete knowledge about the matter in the states of Arunachal Pradesh, Manipur and Sikkim. While in the states of Assam, Mizoram and Nagaland more people are found to have misconception. The proportion of people having misconception about HIV/AIDS and those with complete knowledge are close to each other in the states of Meghalaya and Tripura.

The following table shows the knowledge on HIV-AIDS among the married couple of North Eastern Region (NER) having awareness of HIV-AIDS:

Table 2: Category wise knowledge pattern of the population under study for the different states measured in percentage of total population

State	Awareness level of transmission of AIDS in percentage of total population					
	Rural		Urban		Total	
	Comp. Know.	Misconcep.	Comp. Know.	Misconcep.	Comp. Know.	Misconcep.
Arunachal Pradesh	1.1	1.3	2.3	2.1	1.4	1.5
Assam	2.0	4.5	3.0	3.1	2.2	4.1
Manipur	14.6	11.3	11.2	6.8	13.7	10.2
Meghalaya	3.2	10.2	5.7	5.8	3.8	9.1
Mizoram	1.9	6.1	9.2	13.2	3.8	7.9
Nagaland	6.2	17.1	6.3	19.8	6.2	17.8
Sikkim	4.4	9.1	5.0	3.6	4.5	7.7
Tripura	2.2	4.9	1.5	1.4	2.0	4.0
Total	35.5	64.5	44.1	55.9	37.7	62.3

From the table we find that if we consider the entire population of the north eastern states the misconception about HIV/AIDS is more compared those with complete knowledge. This is true amongst all the cross section of the population viz. rural-urban or any of the states in particular. The only exception is Manipur, where the percentage of people having complete knowledge is more than those having any misconception and this is true for both the rural and urban area of the state. However, it may be noted that Manipur has the highest number of HIV positive cases amongst the northeastern states and third amongst the Indian states after Tamil Nadu and Maharashtra (Sinlung, 2007). According to the last epidemiological report of HIV/AIDS in Manipur, brought out by the Manipur State AIDS Control Society (September 1986 to April 2003), 15,166 out of a total of 95,734 blood samples screened were HIV-positive. In a state which has an area of 22,327 sq km and a population of around 2.3 million (2001 census), this is the highest concentration of HIV/AIDS infection in India (Ahanthem, 2003).

The effects of the explanatory variables over the response variable are studied with the help of the logistic regression. The output of the logistic regression is given below:

Table 3: Odds ratio from binary regression showing effects of selected characteristics on the likelihood of prevalence of diseases with the explanatory variables

Variables in the Equation	B	S.E.	p-value	Odds Ratio	95.0% C.I. for Odds ratio	
					Lower	Upper
<b>Husband's Education</b>						
No						
Yes <sup>®</sup>	-.368	.015	0.000*	0.692	.672	.714
<b>Wife's Education</b>						
No						
Yes <sup>®</sup>	.019	.011	0.092**	1.019	.997	1.041
<b>Residence</b>						
Urban						
Rural <sup>®</sup>	.342	.009	0.000*	1.408	1.384	1.433

Note: <sup>®</sup> Denotes reference category. \*Denotes significant at 5% probability level.  
 \*\*Denotes significant at 10% probability level.

From the above table it has been revealed that if husband with education is taken as the reference category then there is a significant relation between education level of husband with their knowledge about HIV/AIDS. Those men without education is 30 percent less likely (odds ratio 0.692) to have complete knowledge about HIV/AIDS compared to those with education. However, for the women the level of education has a weak association ( $p$ -value 0.092) with complete knowledge about HIV/AIDS. In case of the place of residence, if rural is taken as a reference variable then there is a significant relation between place of residence with the knowledge of the respondents about HIV/AIDS. The urban people with an odds ratio of 1.408, implies that the rural population is 41 percent more informative compared to their urban counterpart.

Table 4: Odds ratio from binary regression showing effects of selected characteristics on the likelihood of prevalence of diseases with the explanatory variables for the rural population

Variables in the Equation	B	S.E.	df	p-value	Odds Ratio	95.0% C.I. for Odds ratio	
						Lower	Upper
<b>Husband's Education</b>							
No							
Yes <sup>®</sup>	-.311	.017	1	0.000*	.733	.709	.757
<b>Wife's Education</b>							
No							
Yes <sup>®</sup>	.024	.012	1	0.046**	1.025	1.000	1.050

Note: <sup>®</sup> Denotes reference category. \*Denotes significant at 5% probability level.  
 \*\*Denotes significant at 10% probability level.

From the above table it has been revealed that in the rural population if husband with education is taken as the reference category then there is a significant relation between education level of husband with their knowledge about HIV/AIDS. Those men without education is 27 percent less likely (odds ratio 0.733) to have complete knowledge about HIV/AIDS compared to those with education. However, for the women the level of education has a weak association ( $p$ -value 0.046) with complete knowledge about HIV/AIDS.

Table 5: Odds ratio from binary regression showing effects of selected characteristics on the likelihood of prevalence of diseases with the explanatory variables for the urban population

Variables in the Equation	B	S.E.	df	p-value	Odds Ratio	95 % C.I. for EXP(B)	
						Lower	Upper
<b>Husband's Education</b>							
No							
Yes <sup>®</sup>	-.681	.039	1	0.000*	0.506	0.469	0.547
<b>Wife's Education</b>							
No							
Yes <sup>®</sup>	-.009	.026	1	0.726	0.991	0.941	1.043

Note: <sup>®</sup> Denotes reference category. \*Denotes significant at 5% probability level.

From the above table it has been revealed that in the urban population if husband with education is taken as the reference category then there is a significant relation between education level of husband with their knowledge about HIV/AIDS. Those men without education is half as likely (odds ratio 0.506) to have complete knowledge about HIV/AIDS compared to those with education. However, for the women the level of education has no association ( $p$ -value  $0.726 > 0.05$ ) with complete knowledge about HIV/AIDS.

## Conclusion

As obvious the people in the rural areas of northeast India have more misconception about HIV/AIDS compared to those residing in the urban areas irrespective of the sex. The educated men have more knowledge compared to the uneducated group. But in case of women the difference between the percentage of people with complete knowledge about HIV/AIDS amongst those with education and those without education is negligible. This is true for both rural and urban women. This factor needs to be attended; it means that even education of women of the northeast India does not play a significant role to do away with the misconception that they have about

HIV/AIDS. Thus special program is to be designed to enhance the awareness of women about it. Though Manipur has the highest prevalence rate of HIV cases but here the maximum proportion of people has complete knowledge about HIV/AIDS irrespective of the place of residence. The greater proportion of complete knowledge may be attributed to the high prevalence rate which has made the people aware of the reasons responsible for HIV transmission.

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