

## Misconception and Knowledge Regarding HIV/AIDS Among Married Women in the Reproductive Age Group in Assam, India

*Subrata Chakraborty and Partha Jyoti Hazarika*

Department of Statistics, Dibrugarh University, Dibrugarh 786004, Assam, India

**Abstract:** To achieve a good health, awareness of different disease is must and it varies from one person to another. Health awareness depends on different socio-demographic factors such as education, location, religion, caste etc. Keeping these points in view, the present paper intends to study the status of misconception and knowledge about the epidemic- HIV/AIDS among the married women in Assam, India and some of its socio-demographic determinants using statistical modeling. The study enrolled a total of 14,268 numbers of married women who belongs to the reproductive age group (15-49) from all the 27 districts of Assam. The study reveals that the factors education, religion, caste and residential status play statistically significant role in clearing concept and gathering knowledge about HIV/AIDS among the married women in the reproductive age group in Assam. The present study has shown evidence of statistically significant improvement in the proportion of individuals with good conception both in rural as well as urban areas. The findings indicated rural, ST and Muslim as the vulnerable section of the population and thus reaffirm the necessity to continue with the implementation of different awareness programmes, especially in these weaker sections of the population with more rigors.

**Key words:** HIV/AIDS • Awareness • Multinomial Logistic Regression • Odds Ratio • Z-Test • p-value

### INTRODUCTION

India has seen a sharp increase in the estimated number of HIV infections since the first HIV/AIDS case in India was identified in Chennai, in 1986. According to an estimate from the National HIV Sentinel Surveillance [1] in the year 2010 almost 2.4 million Indians were found to be HIV positive out of total population of 1.2 billion in the mid year of 2010. Between 2001 and 2009, however, HIV incidence fell by more than 25 percent and estimated national prevalence remained below 1 percent. This figure is significantly lower than previous estimates that used only sentinel surveillance data but is considered more accurate because it is based on a national household survey [2].

According to the 2010 report of the Joint United Nations Program on HIV/AIDS (UNAIDS) [3], sexual intercourse is the primary mode of HIV transmission in India, accounting for about 90 percent of new HIV infections. More than 90 percent of infected women acquired the virus from their husbands or intimate partners. In most cases, women are at an increased risk

not due to their own sexual behavior, but because their partner is either an injecting drug users (IDU) or has other female sex workers (FSW) as sex partners. Injecting drug use is the main mode of transmission in the northeastern states including Assam, although sexual transmission is on the rise [2].

According to phase III of the National AIDS Control programme (NACP) [4] the number of HIV positive cases detected in Assam in the year 2010 till September was 798. Notwithstanding this, Assam continues to be a highly vulnerable state due to a number of factors such as being the gateway of the North East India, surrounded by two high prevalence State of Nagaland and Manipur of India, unsafe sexual practices by flouting/mobile populations, truck drivers and helpers, security personnel, traveling businessmen/salesman, students, tourists and migrant workers. The region's easy access to drugs use is largely attributable to its close proximity to the heroin producing 'Golden Triangle' of Laos, Myanmar and Thailand.

As the main factor behind the multiplication of HIV/AIDS is that about fifty percent of People living with HIV/AIDS (PLWHA) are not even aware about the

disease and even when aware, there is misconception and lack of adequate knowledge. This is more so among the women. So to prevent the disease from spreading, more emphasis is needed to work on enhancement of awareness of people about the epidemic. But, to this end, identification of some socio-demographic factors which may significantly affect the knowledge level among different sections of people is important.

Keeping all these points in view, the present article makes an attempt to estimate the proportion of individuals among the married women in the reproductive age group of Assam with different level of concept (misconception and good concept) and knowledge (full, partial and no knowledge) about HIV/AIDS and to study the impact of some socio-demographic factors namely, caste, locality and education on this level.

**Factors Responsible for Vulnerability of Women to HIV/AIDS:** There are a number of factors-biological, socio-cultural and economic, which make women more vulnerable to HIV and AIDS:

**Biological:** Women are twice as likely as men to contract HIV from a single act of unprotected sex. The female reproductive tract is more susceptible to infection than the male, as a larger surface area of tissue is exposed to the partner's sexual fluid and four times more vulnerable to acquiring other sexually transmitted infection (STI), which greatly increases the risk of HIV infection.

#### Socio- Cultural:

- Women's low status makes it harder to demand fidelity from their partner, insist on condom use or refuse sex, even if they know their partner is infected. They may face violence, abuse or abandonment.
- Culturally, women are often expected to be unaware and submissive in sex, which makes safe sex negotiation harder.
- Many young women are coerced into sex or raped, which itself is a risk factor for HIV. Conflicts, trafficking and prostitution also increase female vulnerability and
- Lower literacy levels among women limit access to HIV/AIDS information. Without an education, women are more vulnerable to poverty, violence, abuse, dying in childbirth and are at greater risk of diseases, including HIV/AIDS.

#### Economic:

- Most women lack the economic independence to leave relationships that put them at risk of HIV.
- With less education and prospects than men, women often have lower incomes and fewer resources to purchase condoms and treat STI.
- Unequal inheritance and property rights reduce women's economic security. If women also lack child custody rights in divorce, they are more likely to endure abusive relationships. In some countries, even if these rights exist, the legal system may not uphold them.
- Unemployment, desertion, divorce or poverty can lead women to sell sex. Many sex workers support their families and remit money home. Sex may be exchanged for material favours or even daily survival.

In the current study respondents' caste, religion, locality of residence and education are considered as the explanatory variables.

**Review of Literature from India:** Before the 1<sup>st</sup> detection of HIV/AIDS Positive cases in India Ghosh [5] found that India is one of the most vulnerable places of world because travelers coming into India from affected countries. Ambati *et al.* [6] studied the awareness and attitudes of HIV/AIDS among 433 students and faculty in colleges and universities and research & technical staff of the Public Health Service. Out of the total population, 96% belief HIV transmits through sexual intercourse and 85% belief it transmits through injection drug use. Balk and Lahiri [7] studied the effect of some socio-economic factors in creating awareness of HIV/AIDS in 13 states of India from the data of NFSH. A community based cross sectional study of 625 randomly selected undergraduates' student of one district of Kerala was conducted by Lal *et al.* [8] and they also studied the level of knowledge and attitudes of the disease HIV/AIDS. Shrotri *et al.* [9] determined the level of HIV/AIDS knowledge of pregnant women in Maharastra, India. Ananth *et al.* [10] investigated the relationships of health beliefs and HIV/AIDS knowledge among women of childbearing age in four major cities of India. Lal *et al.* [11] also studied the awareness level of HIV/AIDS in Senior Secondary School in Delhi. Murugan *et al.* [12] concluded that the education plays an important role in creating awareness of the epidemic HIV/AIDS. The awareness level of married couples of North-East region has been studied by

Bhattacharjee *et al.* [13]. They used multiple logistic regression models to measure the impact of education of both husband and wife on the level of conception about the disease.

### **Objectives of the Study:**

- To study the effect of different socio- demographic factors in creating conception or lack of it among the study subjects.
- To test the hypothesis of improvement in the proportion of individuals with good conception over the period from 2005 to 2007.
- To study the effect of different socio-economic and demographic factors on the level of knowledge of the study subjects.

### **MATERIALS AND METHODS**

To meet the above three objectives simple descriptive measure like frequencies, proportions of various levels of conception and knowledge have been calculated with respect to different socio- demographic factors. To identify the significant effect (if any) of the selected socio- demographic factors on level of concept about the disease a multiple logistic regression model is fitted, where the binary random variable conception with the two levels "misconception" and "good concept" is taken as dependent variable and socio-economic and demographic factors respondents caste, religion, location and education are taken as independent (explanatory) variables. To study the effect of these factors on the level of knowledge about transmission of the disease a multinomial logistic regression model is fitted, where the dependent random variable "knowledge" has three levels namely "complete knowledge", "partial knowledge" and "lack of knowledge".

The data considered for the study is secondary in nature, taken from the District Level Household and Facility Survey, phase III (DLHS-III) conducted by IIPS, Mumbai, India during 2007-2008 at the national level. This Survey collected information from 7,20,320 households across India and interviewed 6,43,944 ever married women (age 15-49 years), 5,48,780 currently married women (age 15-44 years) and 1,66,260 Unmarried women (age 15-24 years). The questionnaire of ever-married women contained information on women's characteristics, maternal care, immunization and childcare, contraception and fertility preferences, reproductive health including knowledge about HIV/AIDS. In the present study, only ever married women are considered.

### **RESULTS AND DISCUSSION**

The study enrolled a total of 14,268 numbers of married women who belong to the reproductive age group (15-49) from 27 districts of Assam, India and heard about the term HIV/AIDS. Of all the study subjects 87.7% are from the rural area. About 26.7% of the subjects belong to the Schedule Caste (SC) community while Schedule Tribe (ST) and Other Backward Class (OBC) women constitute about 12.2% and 30.1% respectively of the sample. A majority of 84.4% of the study subjects are Hindu. The complete demographic profile of the study subjects are given in Table 1.

### **Misconception about the Transmission of HIV/AIDS:**

One cannot be infected by shaking someone's hand, or hugging or kissing, by using the same toilet or drinking from the same glass as an HIV-infected person, or by being exposed to coughing or sneezing by an HIV infected person. These are the some misconceptions about the transmission of HIV/AIDS. In this section we study the contribution of the selected socio- demographic factors creating conception or lack of it among the study subjects i.e. married women of the reproductive age group. If a subject under study posses any one of the above misconception then she is classified as belonging to the 'misconception' category otherwise she will be treated as belonging to the 'good concept' category. The distribution of the sampled population in various strata w.r.t. the misconception is presented in Table 2. The binary random variable thus arises is considered as the dependent variable to be studied for its variation w.r.t. the independent variables caste, religion, education and type of locality using multiple logistic regression model. Table 3 shows the results of multiple logistic regression analysis, which reveals some significant difference in the level of misconception w.r.t. some independent variables.

From the Table 3 it is observed that w.r.t. caste, a women belonging to general caste are 1.172 times more likely to have good conception than their OBC counterpart. Whereas the OBC women are 1.130 (reciprocal of 0.885) times more likely to have good conception than their ST counterpart. These results are statistically significant.

Considering Hindu women as the reference category (being the modal class), it has been observed that the Muslim women are less likely to have good conception (Odds Ratio (OR) = 0.552). In other words Hindu women are 1.81 times more likely to have good conception than the Muslim women. In case of other religions no significant difference is observed.

Table 1: Demographic Profile of the study subjects

Variables	Frequency	Percentage (%)
Caste		
SC	3810	26.70
ST	1734	12.16
General	4435	31.08
OBC	4289	30.06
Religion		
Hindu	12045	84.4
Muslim	1593	11.2
Christian	581	4.10
Others	49	0.30
Types of locality		
Urban	2467	17.3
Rural	11801	82.7
Education		
Literate	10152	71.2
Illiterate	4116	28.8

Table 2: Category wise Conception Pattern of the Sampled Population Classified by Explanatory Variables

Variables	Misconception	Good concept
Caste		
SC	2955	855
ST	1290	444
General	3176	1259
OBC	3205	1084
Religion		
Hindu	8824	3221
Muslim	1326	267
Christian	438	143
Others	38	11
Types of locality		
Urban	1541	926
Rural	9085	2716
Education		
Literate	6932	3220
Illiterate	3694	422

Table 3: Results of Simple Logistic Regression Model

Variables	B	S.E.	Wald	df	p-Value	Exp. (B)
Caste						
SC	0.017	0.065	0.072	1	0.789	1.018
ST	-0.156	0.052	8.885	1	0.003	0.855
General	0.159	0.048	10.753	1	0.001	1.172
OBC <sup>R</sup>						
Religion						
Muslim	-0.595	0.070	71.882	1	0.000	0.552
Christian	-0.112	0.098	1.284	1	0.257	0.894
Others	-0.232	0.343	0.457	1	0.499	0.793
Hindu <sup>R</sup>						
Types of locality						
Urban	0.698	0.047	220.840	1	0.000	2.010
Rural <sup>R</sup>						
Education						
Literate	1.403	0.056	635.678	1	0.000	4.066
Illiterate <sup>R</sup>						

Note: R= Reference Category, B= Regression Coefficient

Table 4: Results of proportion test

Hypothesis	Z value	p-value
I	6.907	0.000
II	9.488	0.000

\*Note that in all the tests the null hypotheses are of no difference over the periods. Z test is applicable as the sample sizes are large

So far as types of locality is concerned, it is observed that women coming from urban area are two times more likely to have good conception about HIV/AIDS than the women belonging to rural area which is statistically significant.

Education plays an important role in creating good concept of HIV/AIDS. This is re-justified from our study, which revealed that literate women are almost four times more likely to have good conception than the illiterate.

**Testing the Improvement in the Proportion of Individuals with No Misconception from 2005 to 2007:** Here we test the hypotheses of improvement in the proportion of individual with no misconceptions from period 2005 to 2007, using the Z test for equality of proportion.

**Hypothesis:** In rural areas the Proportion of individual with no misconceptions in 2007 is more than that in 2005.

**Hypothesis:** In Urban areas the Proportion of individual with no misconceptions in 2007 is more than that in 2005.

The result presented in the Table 4 clearly shows that all the above hypotheses are accepted at 95% level of significance.

**Knowledge about the Disease of HIV/AIDS:** To prevent the disease HIV/AIDS one should know how this decease transmits one man/woman to another actually. There are

many reasons to transmit the virus one to another, such as heterosexual intercourse, homosexual intercourse, transfusion of infected blood, transmission of HIV/AIDS-infected mother to child. In this section multinomial Logistic regression model has been applied to study the effect of different socio-demographic factors on the level of knowledge of the married women in Assam. Here, dependent variable has three categories viz., I. No knowledge: not aware of any one of the reasons, II. Partial knowledge: at least one but not all reasons is known and III. Complete Knowledge: all the reasons are known. Table 5 presents the classification of the sampled individuals belonging to various classes w.r.t. the prevailing knowledge pattern.

To fit the Multinomial Logistic Regression Model we take no knowledge (being the modal class) as the reference category and comparison is made with Partial knowledge and complete knowledge. From the first half of the Table 6 it is observed that for with respect to caste the SC women are less likely ( $OR=0.839$ ) to be have partial knowledge than the women belonging to OBC. In other words OBC women are 1.19 times more likely to have partial knowledge than SC women. Considering education, it is found that literate women are 3.37 times more likely to have partial knowledge about HIV/AIDS than the illiterate women of Assam. Compared to women coming from urban area, women from rural area are less likely ( $OR=0.575$ ) to have partial knowledge of the decease. In fact the finding shows that the urban women are 1.73 times more likely to have partial knowledge than their rural counter part. So far as religion is concerned, it has been observed that the Hindu women are 1.39 times more likely to have Partial knowledge than the Muslim women.

Table 5: Category wise Knowledge Pattern of the Sampled Population Classified by Explanatory Variables

Variables	Partial Knowledge	Full Knowledge	No Knowledge
Caste			
SC	2015	55	1740
ST	908	16	810
General	2594	84	1757
OBC	2398	53	1838
Religion			
Hindu	6886	183	4976
Others	1029	25	1169
Types of locality			
Urban	1676	41	750
Rural	6239	167	5395
Education			
Literate	6499	196	3457
Illiterate	1416	12	2688

Table 6: Results of Multinomial Logistic Regression Model

		95% Confidence Interval for Exp (B)							
Variables		B	SE of B	Wald	d.f.	p-Value	Exp. (B)	L.B.	U.B.
Partial Knowledge	Caste								
	SC	-0.176	0.063	7.846	1	0.005	0.839	0.741	0.948
	ST	0.023	0.050	0.216	1	0.642	1.024	0.928	1.129
	General	0.059	0.050	1.423	1	0.233	1.061	0.963	1.169
	OBC <sup>R</sup>								
	Education								
	Illiterate	-0.215	0.040	942.233	1	0.000	0.297	0.274	0.321
	Literate <sup>R</sup>								
	Types of Locality								
	Rural	-0.553	0.051	119.972	1	0.000	0.575	0.521	0.635
Complete Knowledge	Urban <sup>R</sup>								
	Religion								
	Hindu	0.333	0.053	39.126	1	0.000	1.395	1.257	1.548
	Others <sup>R</sup>								
	Caste								
	SC	-0.331	0.296	1.250	1	0.263	0.718	0.402	1.283
	ST	0.309	0.205	2.273	1	0.132	1.362	0.912	2.034
	General	0.453	0.193	5.518	1	0.019	1.573	1.078	2.296
	OBC <sup>R</sup>								
	Education								
	Illiterate	-2.490	0.299	69.105	1	0.000	0.083	0.046	0.149
	Literate <sup>R</sup>								
	Types of Locality								
	Rural	-0.496	0.184	7.283	1	0.007	0.609	0.424	0.873
	Urban <sup>R</sup>								
	Religion								
	Hindu	0.250	0.232	1.169	1	0.280	1.285	0.816	2.023
	Others <sup>R</sup>								

Note:

1. The reference category is No Knowledge
2. R= Reference Category of Explanatory Variable
3. B= Regression Coefficient

From the 2<sup>nd</sup> half of the Table 6 it is seen that women belonging to general caste are 1.57 times more likely to have full knowledge than their OBC counterpart. In case of other caste no significant difference is observed. In case of respondent education, it is observed that illiterate women are less likely (OR=0.083) to have full knowledge than their literate counterpart. In other words one can say literate women are 12 (1/0.083) times more likely to have full knowledge than their illiterate counterpart. So far as types of locality are concerned, it is observed that women coming from rural area are less likely (OR=0.609) to have full knowledge about HIV/AIDS than the women belonging to rural area. Again, in case of religion is concerned, there is no significant difference is observed between Hindu and others.

## CONCLUDING REMARKS

Findings of this study Can be briefed as follows:

- The results of the simple logistic regression analysis reveals that the socio-economic factors, education, types of locality, religion and caste has a significant impact on the level of conception or lack of it among the married women in Assam.
- A comparison with a result of [13] derived from RCH-II indicates statistically significant improvement in the proportion of individuals with good concept in both rural and urban areas of Assam from the year 2005 to 2007.

- The results of the multinomial logistic regression analysis clearly indicates that the factors such as education, types of locality, Religion and caste play a major role on creating knowledge of HIV/AIDS married women in the reproductive age group in Assam. But only exception is factor religion, which has not made any significant difference on the knowledge level.
- 8. Lal, S.S., R.S. Vasan, P.S. Sarma and K.R. Thankappan, 2000. Knowledge and attitudes College student in Kerala towards HIV/AIDS, Sexually transmitted disease and Sexuality, *The National Medical J. India*, 13: 231-236.
- 9. Shrotri, A., A.V. Shankar, S. Sutar, A. Joshi, N. Suryawanshi, H. Pisal, K.E. Bharucha, M.A. Phadke, R.C. Bollinger and J. Sastry, 2003. Awareness of HIV/AIDS and household environment of pregnant women in Pune, India, *International J. STD and AIDS*, 14: 835-839.

Hence, the government as well as other organizations should take proper steps to implement different awareness programmes like public meetings, display of posters and banners, holding of seminars etc. more rigorously to eradicate the misconceptions and enhance the level of knowledge about HIV/AIDS among married women in the reproductive age group in Assam giving more emphasis on the weaker section of the population identified in the present study by paying more attention towards the rural, scheduled castes and religious minorities.

## REFERENCES

1. Country Progress Report, UNGASS, India, March-2010.
2. Report of NFSH-3, 2005-2006, Conducted by IIPS Mumbai.
3. UNAIDS Report on the Global Aids Epidemic, 2010.
4. <http://www.sinlung.com/2010/12/assam-records-798-hiv-cases-in-2010.html>.
5. Ghosh, T.K., 1986. AIDS: a serious challenge to public health. *J. Indian Med. Assoc.*, 84(1): 29-30.
6. Ambati, B.K., J. Ambati and A.M. Rao, 1997. Dynamics of Knowledge and Attitudes, pp: 319-330.
7. Balk, D. and S. Lahiri, 1997. Awareness and knowledge of AIDS among Indian women: evidence from 13 states. *Health Transition Review*, Supplement to Volume, 7: 421-465.
8. Lal, S.S., R.S. Vasan, P.S. Sarma and K.R. Thankappan, 2000. Knowledge and attitudes College student in Kerala towards HIV/AIDS, Sexually transmitted disease and Sexuality, *The National Medical J. India*, 13: 231-236.
9. Shrotri, A., A.V. Shankar, S. Sutar, A. Joshi, N. Suryawanshi, H. Pisal, K.E. Bharucha, M.A. Phadke, R.C. Bollinger and J. Sastry, 2003. Awareness of HIV/AIDS and household environment of pregnant women in Pune, India, *International J. STD and AIDS*, 14: 835-839.
10. Ananth, P. and C. Koopman, 2003. HIV/AIDS knowledge, beliefs, and behavior among women of childbearing age in India. *AIDS Educ. Prev.*, 15(6): 529-46.
11. Lal, P., A. Nath, S. Badhan and G.A. Ingle, 2008. A Study of Awareness about HIV/AIDS Among Senior Secondary School Children of Delhi, *Indian J. Community Med.*, 33(3): 190-192.
12. Murugan, S., Sabarimuthu, P. Umadevi and C.G. Desigan, 2010. Awarness about HIV/AIDS Among Adolescent Boys in Tribal Village of Nilgiris District, South India, *Humanity and Social Sciences J.*, 5(1): 63-67.
13. Bhattacharjee, D., D.C. Nath, K.K. Das and P.R. Acharjee, 2010. Awareness Level of Married Couples on HIV/AIDS in Northeast India - An Empirical Analysis. *International J. Collaborative Research on Internal Medicine and Public Health*, 2(8): 267-278.