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Meta Analytic Measurement of HIV/AIDS Awareness, Prevention and Accepting Attitude toward People Living with HIV/AIDS in the Seven States of North East India

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ABSTRACT

Background: The HIV/AIDS epidemic continues to gather momentum in India, destroying innocent lives and imperilling future generations. Controlling spread of HIV is critical. Ignoring this will lead millions of Indians in grip of this pandemic. Despite valiant efforts by government agencies and heritable groups, large cross-sections of Indian society still lack information about the nature of the disease and how individuals can protect themselves against it. As a result, the epidemic is spreading rapidly to the general population. The Northeast India is the eastern most part of India with seven states viz. Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura.

Aim & Objective: This study examines the importance of awareness, prevention and accepting attitude strategies for HIV/AIDS among women and men in the age group 15-49 in the seven states of north eastern region of India.

Methods: Data has been taken from the records of National Family Health Survey (NFHS-3; 2005-06) (www.nfhsindia.org) conducted under the stewardship of the Ministry of Health and Family Welfare, Government of India, with the International Institute for Population Sciences, Mumbai. The different categories for comparison are (1) Knowledge of HIV/AIDS among women (2) Knowledge of HIV/AIDS among men (3) Prevention of HIV/AIDS among women (4) Prevention of HIV/AIDS among men (5) Accepting attitude toward people living with HIV/AIDS among women (6) Accepting attitude toward people living with HIV/AIDS among men. A meta analytic model, introduced by Bhattacharjee and Gupta (2008), has been followed by assigning weight as mean of the sub-category scores.

Results: Analyses reveal that Manipur (95%) is associated with the highest level of awareness, prevention and accepting attitude of HIV/AIDS while Meghalaya having the lowest score (17%) is not still fully aware of HIV/AIDS.

Conclusion: Findings highlight the need for integrated awareness and prevention programmes that emphasise on the behavioural change toward the people living with HIV/AIDS which has serious implication for both individual and society as a whole. Further investigations are required to understand the reasons for the low level of awareness in most of the North Eastern states of India.

Keywords: HIV, AIDS, Meta analysis

Introduction

Human immunodeficiency virus (HIV) is a lentivirus member of the retrovirus family that causes acquired immunodeficiency syndrome (AIDS), a condition in human in which the immune system begins to fail, leading to life threatening opportunistic infections. Ever since HIV/AIDS was acknowledged as a problem, the strategies to address the issue have emphasized on prevention, treatment and research. Certain groups of people have been particularly affected and these include injecting drug users, sex workers and men who have sex with men. In many people's minds, HIV and AIDS are closely linked with these groups, which can lead to even greater stigma and prejudice against people already treated as outsiders.

According to estimates from the UNAIDS 2010 AIDS Epidemic Update, around 33.3 million people are living with HIV, out of which around 30.8 million adults and 2.5 million children were living with HIV at the end of 2009. India has the third largest HIV infected population in the world, though the prevalence rate continues to be lower than one per cent. After UNAIDS revised the estimated number of people living with HIV in India downwards from 5.6 million in 2006 to 2.4 million in 2009 (UNAIDS, 2010).

North East region of India consists of seven states Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. It has a long international border with Bangladesh on the west, Myanmar (Burma) in the east and China and Bhutan on the north. It is connected with the rest of the country through narrow passage. Assam serves as a gateway for the other six states to reach to other parts of India, Nagaland and Manipur forms a major drug route from the "Golden Triangle"(Burma) with high prevalence of needle sharing habit among the injecting drug users (IDUs).

By the end of 1987, in India, out of 52,907 who had been tested, around 135 people were found to be HIV positive and 14 had AIDS. Most of these initial cases had occurred through heterosexual sex, but at the end of the 1980s a rapid spread of HIV was observed among injecting drug users (IDUs) in Manipur, Mizoram and Nagaland - three north-eastern states of India bordering Myanmar (Burma) (UNAIDS, 2010).

Study indicated there are 23,087 HIV positive cases in North East, 80 per cent belonging to Manipur alone. 19,033 out of

1,20,213 drug abusers tested positive in Manipur followed by a distant 1,903 out of 31,391 in Nagaland. In Mizoram there are 1,019 positive out of 18,792 drug abusers. Assam has 750 positive out of 47,307 drug abusers. Tripura has 278 positive out of 17,664 and Meghalaya has 70 positive out of 17,664 drug abusers. It is suspected that the figures may be higher looking into the grim situation and as per the fast increased of the cases reported (North East, India Harm Reduction Network).

HIV/AIDS has finally been recognized as a global threat, and people are beginning to take action to prevent it killing many millions more than those who have already died. This action needs to be speeded up considerably. The HIV/AIDS epidemic is growing, and efforts to fight it need to grow at an even greater rate if they are to be successful. Apart from awareness and prevention, another major obstacle in tackling the global HIV/AIDS epidemic is stigma and discrimination. People known to be living with HIV/AIDS are often shunned or abused by community members, employers and even health workers. As well as causing much personal suffering, this sort of prejudice discourages people from seeking HIV testing, treatment and care. Several studies (Sharma, V. et al., 1997; Collumbien, M. et al., 2001) have indicated high level of HIV/AIDS awareness in various groups of Indian population yet prevention and accepting attitude strategies among the general population are still low. Review of literature also indicates that cognitive-behaviour and psychosocial factors are directly associated with HIV/AIDS (Pradhan, J. et al., 2008).

To increase the efficiency of initiative welfare services to those living with HIV/AIDS, it is very important to understand how much the population knows about HIV and how much HIV preventive actions are being practiced. Although HIV situation is diverse across the country as different cultural norms are practiced in different regions, the basic purpose of the study is to measure the level of awareness of HIV/AIDS, its prevention and accepting attitude among women and men in the age group 15-49 in the seven states of North Eastern region of India. This study will not only help to understand the need for undertaking effective and systematic ways for awareness generation and behavioural change but also to ensure that people living with HIV/AIDS have easy access to all kinds of necessary medical investigations and treatment facilities and other social support services. Thus, it is very much important to promote better understanding of HIV infection among the people especially students, youths and other

sexually active sections to adopt safe behaviour practices for prevention. To prevent women, children and other socially weak groups from becoming vulnerable to HIV infection, health education, legal status and economic prospects must be improved. A technique using Meta-analysis, proposed by Bhattacharjee et al. (2008), has been considered here to understand the present scenario of the people of North East India in terms of knowledge of HIV/AIDS with its preventive measures and the nature of attitude toward the people living with HIV/AIDS. The data collected in the third round of the National Family Health Survey (NFHS-3; 2005-06) (www.nfhsindia.org), have been used to purse the objective of this paper.

Development of the Model

Selection of Category and weights

To compare the seven states of North East India viz. Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura in terms of prevailing HIV/AIDS awareness, prevention and accepting attitude among women and men in the age group 15-49, six important categories have been considered from the report of NFHS-3. The different categories for comparison are (1) Knowledge of HIV/AIDS among women (2) Knowledge of HIV/AIDS among men (3) Prevention of HIV/AIDS among women (4) Prevention of HIV/AIDS among men (5) Accepting attitude toward people living with HIV/AIDS among women (6) Accepting attitude toward people living with HIV/AIDS among men.

Under each category there are several sub-categories which will be weighted separately. For selecting the best state having the highest awareness, prevention and positive attitude in terms of HIV/AIDS, we decided to assign weight as mean of the sub-category scores. The sub-category scores are obtained by assigning scores 1 to 10 to the percentage data (available in the report of NFHS-3 (www.nfhsindia.org)) corresponding to each sub-category and are presented in Table 1.

Methodology

Let x_{ijk} denote the score of the i^{th} sub-category belonging to the j^{th} category by the k^{th} State.

Where,

$i = 1, 2, ..., n_j$; n_j = number of sub-categories in the j^{th} category

$j = 1, 2, ..., 6$ (number of category being 6)

$k = 1, 2, ..., 7$ (number of states taken into comparison)

w_{ij} = weight of the i^{th} sub – category in the j^{th} category

$$= \frac{1}{7}\sum_{k=1}^{7} x_{ijk} \quad \text{... (1)}$$

Next, we define S_{jk}, called category index and it gives us an idea about the measure of awareness, prevention and positive attitude in terms of HIIV/AIDS of k^{th} state in the j^{th} category.

S_{jk} = Category Index = score of the j^{th} category in the k^{th} state

$$= \frac{\sum_{i=1}^{n_j} w_{ij} x_{ijk}}{\sum_{i=1}^{n_j} w_{ij}} \quad \text{... (2)}$$

Thus, we obtain all values of S_{jk} (for all the 6 categories corresponding to each of the 7 states). For combining the category indices or category scores of a state, over various categories we proceed as follows:

We calculate $\max_k(S_{jk})$ and $\min_k(S_{jk})$ for each category (j=1,2,.....,6). and define

$$D_{jk} = \max_k(S_{jk}) - S_{jk} \text{ and } D'_{jk} = S_{jk} - \min_k(S_{jk}) \quad \text{... (3)}$$

Thus, D_{jk} is the deviation of the category score of the kth state belonging to the jth category from the maximum category score of any state in that category. So, if a state has smaller value of D_{jk} then greater is the awareness, prevention and positive attitude in that state corresponding to the jth category. Similarly, D'_{jk} is the deviation of the category score of the kth state belonging to the jth category from the minimum category score of any state in that category. So, if a state has higher value of D'_{jk} then greater is the awareness, prevention and positive attitude in terms of HIV/AIDS in that state corresponding to the jth category. Then the mean of these deviations D_{jk} and D'_{jk} for the various categories are then obtained as given below:

$$\bar{D}_k = \frac{1}{6}\sum_{j=1}^{6} D_{jk} \quad \text{and} \quad \bar{D}'_k = \frac{1}{6}\sum_{j=1}^{6} D'_{jk} \quad \text{... (4)}$$

Now, for a state having the highest HIV/AIDS awareness, its prevention and accepting attitude toward people living with HIV/AIDS, the values of D_{jk} for all the categories that is for all values of j will be low and hence will be $\bar{D}_k$. Similarly, for a state with the highest HIV/AIDS awareness, its

prevention and accepting attitude toward people living with HIV/AIDS, the values of D'_{jk} for all the categories will be high and hence will be $\bar{D}_k$.

Thus, the final index or final score for comparing different states is given by,

$$S_k = \frac{\bar{D}'_k}{\bar{D}_k + \bar{D}'_k} \times 100 \quad \ldots (5)$$

The more the value of the index, greater is the awareness, prevention and positive attitude in terms of HIV/AIDS in that state and vice versa. The maximum score that a state can attain is 100 and the minimum score can be zero.

Application

Calculation and Results

The model stated above has been applied to the data obtained from the report of NFHS-3. Table 2 provides the sub-category scores (following Table 1) of the seven states of North East India.

Based on the data presented in Table 2, we perform the computation of the Category Index (S_{jk}) given by equation (2). The values of Category Index (S_{jk}), gives us an idea about the level of awareness, prevention and positive attitude in terms of HIIV/AIDS of the k^{th} state in the j^{th} category. A higher value of the Category Index (S_{jk}) of a state in a particular category implies that people belonging to that state have greatest knowledge of that category. Table 3 shows the Category indices of various north-eastern states.

From the table 3 we see that both male and female population of Manipur and Mizoram have greater knowledge of HIV/AIDS as compared to other states of North East India. In case of prevention of HIV/AIDS among women, Mizoram is leading with a score of 9.54878, while Assam is scoring the lowest (3.54878) implying that population of Assam are more susceptible to infection and preventive resources should be allocated more. The people of Manipur are found to have highest level of positive attitude toward people living with HIV/AIDS and the state Meghalaya still needs to improve on the behavioural factor which plays a significant role in the genesis of HIV/AIDS. Based on equations (3), (4) and (5) we obtain the final Indices or final scores as given in Table 4.

Thus, from Table 4 it is found that Manipur is having the highest access to the effective and necessary strategies to fight against HIV/AIDS followed by Mizoram. But

Meghalaya, having the lowest score, still lacks the knowledge to protect people from HIV/AIDS.

Discussion

The spread of HIV/AIDS in India is a major health concern. The available surveillance data of north eastern region of India indicate that HIV is prevalent in all the states. During the last decade it has spread from urban to rural, valley to hills areas and from individual practicing risk behaviour to general population. More and more women attending ante-natal clinics are found HIV-positive thereby increasing the risk of peri-natal transmission. HIV transmission through the blood transfusion, though low, is a serious issue as unsuspecting population can get infected through this route if safe blood is not made available. The problem of HIV/TB co-infection is also posing a major challenge. Treatment of TB infection among HIV-infected is an area to be taken seriously. There is no risk of any TB patient getting infected with HIV unless he or she practices high risk behaviour or get infected from transfusion of HIV-infected blood. But TB is very common opportunistic infection among the HIV-infected people.

Despite sustained efforts, both awareness and preventive measures have remained low in most of the north eastern states of India. Preventive policies should, therefore, be targeted to poorer, rural and uneducated people by increasing awareness of HIV/AIDS through effective media and interpersonal communication. There is also a need to implement policies that support women's education, especially in rural areas, for behavioural change through communication programmes especially designed for targeting rural, illiterate and poorer sections of the society. Education has already been proved to be effective and necessary, both for people who are not infected with HIV - to enable them to protect themselves from HIV - and for people who are HIV positive - to help them to live with the virus.

This study is based on secondary data analysis and the choice of variables was, therefore, restricted to what was available in the data set. An ever-growing AIDS epidemic is not inevitable. However, unless action against the epidemic is scaled up drastically, the damage already done will seem minor compared with what lies ahead. This may sound dramatic, but it is hard to play down the effects of a disease that stands to kill more than half of the young adults in the countries where it has its firmest

hold. Entire families, communities and countries will begin to collapse if this situation is allowed to occur. HIV/AIDS is not a disease which spreads randomly but is transmitted mainly as a consequence of a specific behavioural pattern and has strong socio-economic implication. While addressing the problem of HIV/AIDS among the economically productive and sexually active section of population, specific emphasis need to be given not only to high risk groups like commercial sex workers, injecting drug users and male having sex with male, but also to specific groups in general population like student, youths, migrant workers in urban and rural areas including women and children. This is a challenging task requiring commitment on the part of the Government, NGOs and civil society. The social, economic and developmental consequences of AIDS in the seven states of North East India are very grim unless an immediate planning is started from now onward. Thus, this research is expected to be a major contribution in exploring the level of HIV/AIDS awareness in the seven north eastern states of India and understanding that a wide range of interventions, including a strong commitment to preventing new HIV infections as well as treating people already infected, is necessary to tackle the AIDS epidemic. This is a priority area of research relevant to the need of the society and the country.

Conflict of interest
None to declare

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Table1: Sub-Category score

Percentage of positive respondents	Sub-category score
0-10	1
10-20	2
20-30	3
30-40	4
40-50	5
50-60	6
60-70	7
70-80	8
80-90	9
90-100	10

Table 2: Sub-category scores of seven states of North East India

Category	States							Weight
	AP	Assam	Mani	Megha	Mizo	Naga	Tri	
1. Knowledge of HIV/AIDS among women in the age group 15-49								
1.1 have heard of HIV/AIDS	7	6	10	7	10	9	8	8.14286
1.2 have comprehensive knowledge of HIV/AIDS	2	1	5	2	7	2	2	3
1.3 know that HIV/AIDS can be transmitted from mother to her baby	6	5	10	5	10	8	7	7.28571
2. Knowledge of HIV/AIDS among men in the age group 15-49								
2.1 have heard of HIV/AIDS	8	8	10	7	10	10	10	9
2.2 have comprehensive knowledge of HIV/AIDS	4	2	7	2	7	4	3	4.14286
2.3 know that HIV/AIDS can be transmitted from mother to her baby	7	7	10	5	9	8	8	7.71429
3. Prevention of HIV/AIDS among women in the age group 15-49								
3.1 know that the risk of HIV/AIDS can be reduced by using condoms	4	3	8	3	9	5	5	5.28571

3.2 know that HIV/AIDS can be reduced by limiting sex to one uninfected person	4	4	9	5	10	7	6	6.42857
4. Prevention of HIV/AIDS among men in the age group 15-49								
4.1 know that the risk of HIV/AIDS can be reduced by using condoms	7	6	10	5	10	7	7	7.42857
4.2 know that HIV/AIDS can be reduced by limiting sex to one uninfected person	7	5	10	6	10	8	8	7.71429
5. Accepting attitudes of women in age group 15-49 toward people living with HIV/AIDS								
5.1 willing to care for relative with HIV/AIDS in own Home	8	7	8	6	8	7	6	7.14286
5.2 buy fresh veg. From a shopkeeper who has HIV/AIDS	5	6	8	3	7	4	6	5.57143
5.3 say that a female teacher with HIV/AIDS but not sick should be allowed to continue teaching	6	7	8	4	7	5	6	6.14286
5.4 would not want to keep secret that a family member got infected with HIV/AIDS	8	9	10	7	6	8	8	8
5.5 accepting attitude on all four above indicators	3	3	6	1	3	2	4	3.14286
6. Accepting attitudes of men in the age group 15-49 toward people living with HIV/AIDS								
6.1 willing to care for relative with HIV/AIDS in own Home	8	7	9	7	9	7	7	7.71429
6.2 buy fresh veg. From a shopkeeper who has HIV/AIDS	6	5	9	4	8	5	6	6.14286
6.3 say that a female teacher with HIV/AIDS but not sick should be allowed to continue teaching	7	6	9	5	7	6	6	6.57143
6.4 would not want to keep secret that a family member got	7	9	10	7	6	9	8	8

infected with HIV/AIDS								
6.5 accepting attitude on all four above indicators	4	3	7	3	3	3	4	3.85714
AP = Arunachal Pradesh, Mani = Manipur, Megha = Meghalaya, Mizo = Mizoram, Naga = Nagaland, Tri = Tripura								

Table 3: category Indices of seven states of North East India

Category	States						
	AP	Assam	Mani	Megha	Mizo	Naga	Tri
Knowledge of HIV/AIDS among women in the age group 15-49	5.79070	4.79070	9.18605	5.39535	9.51163	7.46512	6.62791
Knowledge of HIV/AIDS among men in the age group 15-49	6.83562	6.43836	9.40411	5.26712	9.03425	8.06849	7.86986
Prevention of HIV/AIDS among women in the age group 15-49	4	3.54878	8.54878	4.09756	9.54878	6.09756	5.54878
Prevention of HIV/AIDS among men in the age group 15-49	7	5.49057	10	5.50943	10	7.50943	7.50943
Accepting attitudes of women in age group 15-49 toward people living with HIV/AIDS	6.50952	6.92857	8.32381	4.77619	6.55238	5.77619	6.32381
Accepting attitudes of men in the age group 15-49 toward people living with HIV/AIDS	6.69027	6.43363	9.00885	5.54425	6.94248	6.43363	6.49558

Table 4: Final Indices of seven states of North East India

States	AP	Assam	Mani	Megha	Mizo	Naga	Tri
Final Index	30.71083	21.32282	95.09385	17.39804	81.69172	42.01307	39.07090