

# Women Awareness about AIDS: Evidence from Natore District of Bangladesh

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## Abstract

HIV/ AIDS is a alarming influential cause of death in worldwide facing the growing rate at risk with epidemic concern. This study is used to analysis the women awareness about HIV/AIDS in Bangladesh. Primary data have been used by using multi-stage sampling design. Logistic regression procedure is applied in the study. The results reveal that majority women know the name of AIDS and preventive measure with consistent used of condom. The Chi-square ( $\chi^2$ ) test result implies that parents' education and occupation; watching television (TV) and regular meeting with health workers are highly significantly associated with heard the name of AIDS, knowledge about AIDS and preventive knowledge of AIDS. Logistic analysis indicates the women who watching TV have 10.621 times higher knowledge about AIDS than the women who do not watch TV. Literate women are 2.237 times more likely to know condom prevent AIDS than illiterate women and the women who watching TV, their preventive knowledge 9.917 times higher than the women who haven't watched TV. Therefore, we should create opportunity for available access to electronic media with upholds overall education.

## INTRODUCTION

Bangladesh is a low HIV prevalence country with several well-documented at-risk groups in women. Experts opined the situation is below (<1%) the level of concentrated epidemic. At least 42 people died of AIDS, 111 others got infected with HIV and 288 found HIV positive this year 2008, as of last year, 123 people died of AIDS, 365 others got infected and 1207 found HIV positive (Rahman, 2008). Bangladesh has been identified as one of the five countries where HIV/AIDS infections are rising in the Asia-Pacific region as it is surrounded by nations with much higher prevalence rates and with its own at-risk population, it was revealed at the 8th International Congress on HIV/AIDS in Asia and the Pacific held in Colombo, 2007. The outbreak of HIV in neighbouring countries, cross borders and steady rise of STIs/STDs make Bangladesh a high-risk zone for HIV/AIDS prevalence (Biswas, 2007). Mondal et al. (2008), showed that among street-based female sex workers (SFSWs) in Rajshahi city of Bangladesh, 56.7% were infected with two or more pathogens of STDs and illiterate and comparatively older SFSWs who spent very little money for their health, had large numbers of children, and used condom inconsistently were observed to be at higher risk of STDs.

AIDS was first identified as a distinct entity in 1981 in the

USA (Gottlieb et al., 1981) and then the number has increased rapidly all over the world (UNAIDS, 2002). It is one of the five well-established causes of death in the world (Piot et al., 2001; Quinn, 1996). AIDS posing a challenge to the mankind already claimed the lives of more than 23 million, killing about 3 million people every year. According to WHO report 2002, an estimated 42 million people throughout the world currently living with HIV and 70 million men, women and children may die of AIDS in next 20 years and 25 million children will be orphan by 2010. According to the UNAIDS report 2002, approximately 13,000 people (including women and children) are carrying HIV infection in Bangladesh and experts opined the situation is below the level of concentrated epidemic (<1%). However, till December 2004, only 465 cases were officially reported. The sere-surveillance studies have shown an increased HIV prevalence from 1.4% (2002) to 4% (2003) to 8.9% (2004) among injecting drug users (IDU) in central area of Bangladesh indicating rapid evolving of HIV epidemiology in the country (Nasreen, 2005).

Although first AIDS case in Bangladesh was detected in 1989 (DGHS, 2000) little is known about HIV/AIDS awareness in Bangladesh (Khan, 2002). The over populated country is still fortunate because of having low HIV/AIDS prevalence (less than 1 per 1000 adults) as compared to

neighboring countries such as India, Nepal, Thailand and Myanmar (PRB, 2002). But presence of many contextual, behavioral and biomedical factors indicated that Bangladesh is at the beginning of HIV/AIDS epidemic threat (Azim et al., 2000; Gibney et al., 1999a; Gibney et al., 1999b). High prevalence of STDs (Khan, 2000; Azim et al., 2000; Gibney et al., 1999b; Khan et al., 1997) including limited knowledge of STD/HIV/AIDS (Gibney et al., 1999a; Khan et al., 1997) coupled with high rates of literacy, poverty, and low rate of condom use (Khan, 2002; Gibney et al., 1999a; Islam et al., 1999) may aggravate the HIV/AIDS situation.

As the chair of the Technical Committee of the National AIDS Committee (2007) said a poor country like Bangladesh has to choose for preventive measures rather than depend on costly drugs or future vaccines. Therefore, this study has great importance to examine the awareness of women about HIV/AIDS. Hopefully the findings of the study would be helpful to policy makers, executive agents and health personnel in order to formulate appropriate strategies to improve the HIV/AIDS awareness and preventive activities.

## MATERIALS AND METHODS

From November to December 2007, a study on HIV/AIDS was conducted among reproductive aged women (aged 15-49 years) of Natore sadar upazila in Natore district of Bangladesh. All eligible reproductive aged women were requested to participate in the study after being given a brief description of the purpose and procedures of the study. To investigate socio- demographic information on women, 796 women were selected as the study population through using multi-stage sampling design. A structured questionnaire was developed to explore awareness of women about HIV/AIDS, after a long discussion with an expert group in this area. A personal interview approach was followed for the purpose of data collection. Women were directly interviewed and the information was collected with the questionnaire. The data were analyzed by using Statistical Package for Social Sciences (SPSS), version 10.0. A contingency analysis was used to test for association between the different phenomena on the basis of classification of variables or attributes by applying the Chi-square ( $\chi^2$ ) test, in which  $\chi^2 = \sum (O_{ij}/E_{ij} - N)$ , follows a  $\chi^2$  distribution with  $(r-1)(c-1)$  degrees of freedom. A logistic regression analysis was performed in order to observe the effects of the independent variables (X) on the dependent variable (Y). The logistic function can be written as:

**Figure 1**

$$E(Y/Z=z) = \frac{e^z}{1+e^z}$$

where,  $z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9$

where  $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$  and  $\beta_9$  are regression parameters to be determined from the data. For the predicted variable

**Figure 2**

$$\text{For Model 1: } Y = \begin{cases} 1, & \text{if ever heard the name AIDS,} \\ 0, & \text{otherwise.} \end{cases}$$

$$\text{For Model 2: } Y = \begin{cases} 1, & \text{if know about AIDS,} \\ 0, & \text{otherwise.} \end{cases}$$

$$\text{For Model 3: } Y = \begin{cases} 1, & \text{if know condom prevent AIDS,} \\ 0, & \text{otherwise.} \end{cases}$$

And for the explanatory variables

**Figure 3**

$$\begin{aligned}
 X_1 = \text{Place of Residence} &= \begin{cases} 1, & \text{if rural,} \\ 0, & \text{otherwise.} \end{cases} \\
 X_2 = \text{Mother's education} &= \begin{cases} 1, & \text{if literate,} \\ 0, & \text{otherwise.} \end{cases} \\
 X_3 = \text{Father's education} &= \begin{cases} 1, & \text{if literate,} \\ 0, & \text{otherwise.} \end{cases} \\
 X_4 = \text{Mother's occupation} &= \begin{cases} 1, & \text{if professional,} \\ 0, & \text{otherwise.} \end{cases} \\
 X_5 = \text{Father's occupation} &= \begin{cases} 1, & \text{if professional,} \\ 0, & \text{otherwise.} \end{cases} \\
 X_6 = \text{Monthly income of household} &= \begin{cases} 1, & \text{if taka 2500+,} \\ 0, & \text{otherwise.} \end{cases} \\
 X_7 = \text{Watches TV} &= \begin{cases} 1, & \text{if yes,} \\ 0, & \text{otherwise.} \end{cases} \\
 X_8 = \text{Listens radio} &= \begin{cases} 1, & \text{if yes,} \\ 0, & \text{otherwise.} \end{cases} \\
 X_9 = \text{Visit of health worker} &= \begin{cases} 0, & \text{if no,} \\ 1, & \text{if irregular} \\ 2, & \text{if regular.} \end{cases}
 \end{aligned}$$

## RESULTS AND DISCUSSION

A vast section of people don't know what the impacts of HIV/AIDS disease are and how to avoid this. Different Govt. and non-government organizations (NGOs) are undertaking various awareness raising health programs to make consciousness among the people. Mass media particularly electronic media are contributing to grow awareness. The most recent idea to gain more success in this field is community development in the society. Community development here means demonstration of introducing concept among the people about this disease through religious leaders, teachers, friends and relatives. The study will help to get an idea about the contribution of the above mentioned sources. Table 1 reveals the percentage of mother have heard the name of AIDS and it is only 88.4% and 11.6% have not heard the name of AIDS; 76.5% have known about AIDS and 23.5% have not known; 76.4% have known

consistent used of Condom prevents AIDS and 23.6% have not known.

**Figure 4**

Table 1 Percentage of women aged 15-49 according to some selected AIDS awareness based characteristics.

Background characteristics	Number of cases	Percentages
Ever heard the name AIDS?		
No	92	11.6
Yes	704	88.4
Know about AIDS		
No	187	23.5
Yes	609	76.5
Condom prevent AIDS you know		
No	188	23.6
Yes	608	76.4

In the light of socio-demographic factors 'ever heard the name of AIDS' is significantly associated with mother's education, father's education, father's occupation, monthly income, watches TV and visitation of health worker that has been represented in Table 2. Knowledge about AIDS and Consistent use of condom prevent AIDS are statistically significantly associated with parent's education and occupation, monthly income, watched TV regularly and visitation of health worker. Especially, parents' education, occupation, monthly income and having TV are important in building awareness of women about AIDS.

**Figure 5**

Table 2 Results of contingency analysis according to socio-demographic factors with women awareness based characteristics.

Attributes	Ever heard the name AIDS			
	Cal. $\chi^2$	Df.	Asy Sig ( $p$ )	Sig
Place of residence	12.611	1	0.000	Sig*
Mother's education	73.065	2	0.000	Sig*
Father's education	62.118	2	0.000	Sig*
Mother's occupation	0.632	2	0.729	Insig
Father's occupation	40.595	3	0.000	Sig*
Household income	50.193	3	0.000	Sig*
Watches TV	62.897	1	0.000	Sig*
Listens radio	0.005	1	0.945	Insig
Visit health worker	11.944	2	0.003	Sig*

  

Attributes	Know about AIDS			
	Cal. $\chi^2$	Df.	Asy Sig ( $p$ )	Sig
Place of residence	12.757	1	0.000	Sig*
Mother's education	125.521	2	0.000	Sig*
Father's education	99.939	2	0.000	Insig
Mother's occupation	5.399	2	0.067	Sig***
Father's occupation	90.772	3	0.000	Sig*
Household income	104.168	3	0.000	Sig*
Watches TV	161.621	1	0.000	Sig*
Listens radio	0.018	1	0.892	Insig
Visit health worker	11.876	2	0.003	Sig*

  

Attributes	Know condom prevent AIDS			
	Cal. $\chi^2$	Df.	Asy Sig ( $p$ )	Sig
Place of residence	13.260	1	0.000	Sig*
Mother's education	127.579	2	0.000	Sig*
Father's education	101.640	2	0.000	Sig*
Mother's occupation	5.346	2	0.069	Sig***
Father's occupation	92.137	3	0.000	Sig*
Household income	104.354	3	0.000	Sig*
Watches TV	158.904	1	0.000	Sig*
Listens radio	0.012	1	0.912	Insig
Visit health worker	12.963	2	0.002	Sig*

\* Significance at  $p < 0.01$  \*\* Significance at  $p < 0.05$  \*\*\* Significance at  $p < 0.10$

Tab  $\chi^2_{(1)} = 6.635$  with 1 d.f.; Tab  $\chi^2_{(2)} = 9.210$  with 2 d.f. Tab  $\chi^2_{(3)} = 11.3449$  with 3 d.f.;  
 Tab  $\chi^2_{(1)} = 3.841$  with 1 d.f.; Tab  $\chi^2_{(2)} = 5.991$  with 2 d.f.;  
 Tab  $\chi^2_{(1)} = 2.705$  with 1 d.f.; Tab  $\chi^2_{(2)} = 4.605$  with 2 d.f.;

## DETERMINANTS OF KNOWLEDGE AND AWARENESS ABOUT AIDS

Logistic regression of Model 1 includes ever heard the name of AIDS as dependent variable and some selected socio-demographic characteristic as the independent variables in Table 3. According to the fitted model as shown in Table 3, only 4 out of 9 independent variables are statistically significant at 1% and 10% level. These significant predictors of ever heard the name of AIDS are place of residence, mother's education, television and visitation of health worker. It is evident that women in rural area have heard the name of AIDS, 0.715 times lower than the women of urban area. Illiterate women of Bangladesh are in vulnerable condition because of having very poor knowledge on AIDS. We found that regression coefficient and odds ratio for the illiterate mothers are 0.982 and 2.670. Hence it is observed that mother education is positively significant at 5% level and illiterate women have heard the name of AIDS, 2.670 times higher than illiterate women. Model 1 indicates that the women who used to television for watching have heard the name of AIDS, 5.628 times higher than the women who did not use to watch TV. Women to whom health

worker used to come irregularly have heard the name of AIDS, 2.479 times higher than the women to whom health worker did not use to come and women to whom health worker used to come regularly have heard the name of AIDS, 4.899 times higher than the women to whom health worker did not use to come.

In Table 3, logistic regression of Model 2 includes knowledge about AIDS is the dependent variable and selected socio-demographic characteristic is the independent variables. According to the fitted model as shown in Table 3, only 5 out of 8 independent variables are statistically significant at 1% and 10% level and these significant predictors are mother's education, father's education, father's occupation, television and visitation of health worker. Model 2 implies that regression coefficient and odds ratio for the illiterate women are 0.787 and 2.197 respectively. It is clear that mother's education is positively significant at 1% level and literate women have 2.197 times higher knowledge about AIDS than illiterate women. It also reveals that regression coefficient and odds ratio for the illiterate fathers' are 0.632 and 1.881 respectively and literate fathers have 1.881 times higher knowledge about AIDS than illiterate fathers which has positively significant at 1% level. It is observed that father's profession is positively significant at 1% level and professional fathers have knowledge about AIDS 1.902 times higher than nonprofessional fathers. Model 2 also shows that the women who watched television regularly they have 10.621 times higher knowledge about AIDS than the women who did not use to watch TV. Visitations of health worker in regular and irregular basis have knowledge about AIDS 5.402 times and 2.984 times respectively higher than the women to whom health worker never come.

Model 3 includes that how condom prevent AIDS as a dependent variable and some selected socio-demographic characteristic as the independent variables which shown in Table 3. The fitted model (Table 3) only 5 out of 8 explanatory variables are statistically significant at 1% and 10% level. These significant predictors are mother's education, father's education, father's occupation, television and visitation of health worker. Regression coefficient and odds ratio for the illiterate mothers are 0.805 and 2.237 respectively which implies mothers' education is positively significant at 1% level and literate women are 2.237 times more likely to know that condom prevent AIDS than illiterate women. Father's education is also positively significant at 1% level and literate fathers have 1.897 times



more likely to know that condom prevents AIDS than illiterate fathers. Professional fathers have 1.949 times more likely to know that condom prevents AIDS than nonprofessional fathers that mean father's profession has positive significant effects (at 1% level). The women, who used to watch television, know condom prevent AIDS that are 9.917 times higher than the women who did not use to watch TV. Visitation of health worker has significance impact of women's AIDS consciousness. Irregular and regular visit of health worker have 2.768 times and 6.307 times more likely to know that condom prevents AIDS than the women to whom health worker did not use to come and it has positive significant effects to acquire knowledge that condom prevents AIDS.

**Figure 6**

Table 3. Logistic regression estimates for the effects of socio-demographic variables on ever heard the name of AIDS, knowledge about AIDS and know condom prevent AIDS as the dependent variables.

Characteristics	Model 1		Model 2		Model 3	
	Ever heard the name of AIDS		Knowledge about AIDS		Know condom prevent AIDS	
	Coefficient (ß)	Odds ratio	Coefficient (ß)	Odds ratio	Coefficient (ß)	Odds ratio
Place of residence:						
Urban ®	...	1.000	...	1.000	...	1.000
Rural	-0.335*	0.715	.078	1.081	.062	1.064
Mother's education :						
Illiterate ®	...	1.000	...	1.000	...	1.000
Literate	0.982*	2.670	.787*	2.197	.805*	2.237
Father's education :						
Illiterate ®	...	1.000	...	1.000	...	1.000
Literate	0.719	2.053	.632**	1.881	.640*	1.897
Mother's occupation:						
Non professional ®	...	1.000	...	1.000	...	1.000
Professional	-0.855	0.425	-.162	.851	-.151	.860
Father's occupation:						
Non professional ®	...	1.000	...	1.000	...	1.000
Professional	0.360	1.433	.643***	1.902	.667*	1.949
Monthly income of household:						
<2500 ®	...	1.000	...	1.000	...	1.000
2500+	0.422	1.525	.328	1.388	.313	1.368
Watches TV:						
No ®	...	1.000	...	1.000	...	1.000
Yes	1.728*	5.628	2.363*	10.621	2.294*	9.917
Listens radio:						
No ®	...	1.000	...	1.000	...	1.000
Yes	0.067	1.069	.177	1.194	.177	1.194
Visit of health worker:						
No ®	...	1.000	...	1.000	...	1.000
Irregular	0.908	2.479	1.093***	2.984	1.018	2.768
Regular	1.585**	4.899	1.687*	5.402	1.669*	6.307
Constant	-1.002	.367	-2.505	.082	-2.481	.084

\* Significance at  $p < 0.01$  \*\* Significance at  $p < 0.05$  \*\*\* Significance at  $p < 0.10$  (R): Reference category.

## CONCLUSION AND RECOMMENDATIONS

HIV/AIDS is no doubt a devastating pandemic in the history of mankind in the world. Though in the recent times, there are some anti retroviral drugs have been innovated but those are not the remedies of this disease. The low level of women awareness on STDs and HIV/AIDS are always upsetting for rapid flow of epidemic within population in Bangladesh. The women of the study areas are deprived of all health assistance since they are illiterate and ignorant about their

physical fitness. Awareness and preventive knowledge of HIV/AIDS have seen higher tendency of mothers but they are at high risk of spreading HIV/AIDS.

## RECOMMENDATIONS

A lot of work is to be done by the government and non-government institutions as well as the general civilian to come forward for creation awareness about HIV/AIDS among the people. Therefore, the following recommendations should be implemented to overcome this disease from our nation:

The existing awareness level and knowledge about HIV/AIDS as well as prevention of this disease should be improved through mass media such as radio, television, newspaper and widespread observation of AIDS day.

Governmental and non-governmental organizations, social and religious leaders should be brought in effective participation in increasing the awareness about HIV/AIDS to the society.

Special arrangement should be made to spread the knowledge on correct use of condom especially among the couples.

Health personnel need knowledge of HIV/AIDS.

Voluntary counseling and testing of HIV.

Preventing sexually transmitted infections.

More comprehensive qualitative research is needed to the better understanding of the factors relevant to the knowledge and prevention of HIV transmission.

## References

- r-0. Azim T, Islam MN, Bogaarts J, Miane AH, Sarker MS and Fattah KR. Prevalence of HIV and syphilis among high-risk groups in Bangladesh. AIDS 2000; 14: 210.
- r-1. DGHS. Strategic Plan of the national AIDS programme of Bangladesh 1997-2002. In: Bangladesh AIDS Prevention and Control Programme. Directorate General of Health Services, Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh, Dhaka, 2000.
- r-2. Gibney L, Choudhury P, Khawaja Z, Sanker M & Vermund SH. Behavioral risk factors for HIV/AIDS in a Low-HIV prevalence muslim nation: Bangladesh. International Journal STD & AIDS 1999a; 10: 186-94.
- r-3. Gibney L, Choudhury P, Khawaja Z, Sanker MM, Islam N & Vermund SH. HIV/AIDS in Bangladesh: an assessment of biomedical risk factors for transmission. International Journal STD & AIDS 1999b; 10: 186-94.
- r-4. Gottlieb MS, Schroff, R, Schanker, HM, Weisman JD, Fan PT, Wolf RA and Saxon A. Pneumocystis Carinii Pneumonia and Mucosal Candidiasis in Previously Healthy

Homosexual Men: Evidence of a New Acquired Cellular Immunodeficiency. *New England Journal of Medicine* 1981; 305: 1425-31.

r-5. Islam M, Mitra AK, Mian AH and Vermund SH.

HIV/AIDS in Bangladesh: a national surveillance (short report). *International Journal STD & AIDS* 1999;10: 471-4.

r-6. Khan MA. Knowledge on AIDS among female adolescents in Bangladesh. Evidence from the Bangladesh Demographic Health Survey Data, *Journal of Health and Population Nutrition* 2002; 20: 130-37.

r-7. Khan ME and Patel C. Reproductive behavior among muslim in Uttar Pradesh. Asia and Near East Operation Research and Technical Assistance Project, USAID, New Delhi: Population Council 1997.

r-8. Mondal NI, Hossain K, Islam R and Main AB. Sexual Behavior and Sexually Transmitted Diseases in Street-based Female Sex Workers in Rajshahi City, Bangladesh. *The Brazilian Journal of Infectious Diseases* 2008; 12(4): pp287-292.

r-9. Nasreen, H. A response to HIV/AIDS. *The Daily Star* 2005 Oct 02: Web Edition Vol. 5 Num 481.

r-10. Piot P, Bartos M, Ghys PD, Walker N and Schwartzlander B. The global impact of HIV/AIDS. *Nature* 2001; 401: 968-73.

r-11. PRB. World population data sheet of the population

reference bureau, demographic data and estimate for the countries and religion of the World. Washington, DC 2002.

r-12. Quinn TC. Global burden of the HIV pandemic. *The Lancet* 1996; 348: 99-106.

r-13. Rahman M. World AIDS Day Today: 42 Die, 111 Get Infected, 288 HIV Positive this Yr. Roundtable Conference Arranged by the Daily Prothom Alo in 2008. *The Daily Prothom Alo* 2008 Dec 1.

r-14. Shah SA, Kristensen, S. and Khan OA. Behavioral and biomedical risk factors for the transmission of HIV/AIDS in Bangladesh. *International Journal STD & AIDS* 2000; 11: 133-34.

r-15. United Nations HIV/AIDS awareness and behavior. United Nations Publications 2002 Sales no. E.02.xxx

r-16. Joint United Nations programme on HIV/AIDS: AIDS epidemic update. UNAIDS and WHO, Geneva 2002.

r-17. Joint United Nations Programme on HIV/AIDS: The Global Report on HIV/AIDS. UNAIDS, Geneva 1998.

r-18. World Health Organization. Programming for adolescent health and development. Geneva. 1999;WHO Technical Report Series no. 886.

r-19. World Health Organization. Diet, nutrition and the prevention of chronic diseases: report of a joint WHO/FAO expert consultation, Geneva. *Bull World Health Organ* 2002; report series; 916.

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