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Full Length Research Paper

Exploring the Landscape of HIV/AIDS Education and Prevention in Bangladesh: Analysis of Data from the 2007 Demographic and Health Survey

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There is no way to get rid of the unbearable sufferings from this killer disease, HIV/AIDS: prevention is the only solution to get rid of it. Increasing knowledge of respondents about the long term effects of this disease is the principal objectives of reproductive health programs recently being carried out in the world. This study gives an idea about this type of health problem. This study is mainly based on secondary data. The study reveals that currently married women (71%) have heard more of HIV/AIDS than formerly married women (about 57%), and that TV is the most dominant source for getting information about HIV/AIDS. In this study, it is also proved that avoiding unsafe blood transfusion is one of the best possible ways of preventing HIV/AIDS. Almost all the variables of contingency analysis are significantly associated (highest significant) with HIV/AIDS. Multivariate logistic analysis revealed that currently married women are more likely to use knowledge about HIV/AIDS than formerly married women.

Key words: HIV/AIDS, currently married, formerly married, logistic regression analysis, Bangladesh.

INTRODUCTION

Acquired Immune Deficiency Syndrome (AIDS) is the late clinical stage of the Human Immunodeficiency Virus (HIV). It weakens the immune system and makes the human body susceptible to and unable to recover from other opportunistic diseases. Consequently, it may lead to high rates of deaths of certain people and worldwide wreaking devastation, involving millions of people and communities. The virus is generally transmitted through the following ways: sexual intercourse, transmission from infected women to their unborn children, or through contaminated needles (infections) or blood (Rahman et al., 2005). HIV/AIDS poses a serious challenge to mankind. At present, it has become a major public-health concern in many developing countries including Bangladesh.

In many countries, AIDS has stalled or reversed decades of human development. The impact of HIV/AIDS reaches every concern of society in Bangladesh. HIV/AIDS has also become a national concern in Bangladesh and the government has already developed a national strategy and an operational plan to address the country's needs. Worldwide experience of HIV/AIDS disease has suggested that public knowledge on it is the most fundamental weapon that can be used to fight against the AIDS pandemic as long as a vaccine or cure has not been developed (UNAIDS China, 2002). The level of knowledge of the population is thus an important measure for understanding the magnitude of the challenges by Government and Non-government organizations (United Nations, 2002). It is strongly needed to assess the current level of specific knowledge about HIV/AIDS prevention by women and other key socio-demographic factors to meet the targets and goals of HIV/AIDS prevention and control.

In recent years there has been an increasing incidence of research on the clinical and epidemiological aspects of HIV. A study of Swinne et al. (1991) focused on AIDS related infections, and they were convinced that the pigeon coops of the city play a part in the contamination of HIV/AIDS patients. Epidemiological research mostly

focuses on attitudes of people of Iran and Turkish in relation to HIV transmission routes (Nakhaee, 2002; Ayranci, 2005). So far the disease has no reliable anti-biotic medicine till today, but cure for HIV/AIDS infection remains an elusive goal despite the significant impact of current treatments. This is because of the virus' ability to adapt to and resist those treatments, and also to bypass the immune system's natural defenses (Suhadolnik, 2007).

HIV still continues to be a very common complication worldwide. During the twenty-first century, it was the fourth cause of mortality, with more than 5% of deaths all over the world (Murray et al., 2001). In a study, up to 40 million people are estimated to live with HIV in the world. In addition, 25 million deaths have been reported (UNAIDS/WHO, 2006). The level of knowledge of the population is thus an important measure for understanding the magnitude of the challenges by Government and Non-government organizations.

In 2007, it is estimated that 33, 7, 400,000 and 4.2 million people are living with HIV/AIDS in the globe, including East Asia and South/South-East Asia, respectively. About 5 millions people are living with HIV/AIDS in Asia, 75% of whom reside in three countries-China, India (the two most populous countries in the world) and Thailand (UNAIDS and UNAIDS/WHO, 2008). India alone is home to more than 45% of all people living with HIV/AIDS in the region (2,400,000 people) and is the third largest country in the world with the epidemic after South Africa and Nigeria (UNAIDS and UNAIDS/WHO, 2008; UNAIDS). HIV prevalence rates in the globe, including East Asia, South/South- East Asia are 0.1, 0.3 and 0.8%, respectively. HIV in Asia is spread primarily through sex, with commercial sex largely driving transmission in much of the region. Injecting drug use is a major risk factor in several Asian countries. There is growing concern about the overlap of sex work and injecting drug use as well as the transmission of HIV to the partners of those infected through commercial sex (UNAIDS, 2008). Bangladesh, unlike its neighbors, still has low infection rates, and may face a major threat in coming decades.

Bangladesh is the seventh most populous country in the world with a population of about 161.3 million (UNFPA, 2008) . Rapid urbanization and industrialization have increased the scope of mobility within the country and job opportunity outside the country as well. During the past two decades, the urban population has grown from 6 million in 1974 to 21 million in 1994, and it is expected to grow to over 50 million by 2014. About two million migrant workers live in Middle East and South East Asian countries (World AIDS Day, 2001). Bangladesh is passing 'window of opportunity' and without HIV prevention program this country will have epidemic of HIV/AIDS, which would be disastrous for this poor country. The whole situation would be out of control. A HIV/AIDS prevention program including mass program and capacity building are some of the steps urgently needed the HIV
problem in Bangladesh. It is difficult to generate knowledge about the risks associated with HIV/AIDS transmission due to the conservative social environment and level of denial, which limit free and open discussion of sexual issues. While knowledge does not always lead to safe behaviour, it is harder for people to protect themselves from HIV/AIDS when they are unaware. This leads to the fact that strategies and campaigns to increasing knowledge about HIV/AIDS in Bangladesh related issues are too important to ignore in Bangladesh.

Objectives of the study

This present study focuses on:

i) To identify the socio-demographic factors related to knowledge about HIV/AIDS.
ii) To investigate the factors related to knowledge about the HIV/AIDS prevention.

DATA SOURCES AND METHODOLOGY

The data for the present study have been derived from the Bangladesh Demographic and Health Survey (BDHS) 2007, which was conducted under the authority of the National Institute for Population Research and Training (NIPORT) of the Ministry of Health and Family Welfare.

At first, we estimate percentage distribution of currently-married and formally married women who have or not ever heard of HIV/AIDS. Secondly, to test any association between different phenomena that could be useful in the cross tabulation, analysis by Pearson's chi-square (^{2}) statistic is considered. Finally, logistic regression was used to estimate the number of determinant on ''ever heard'' of HIV/AIDS and its prevention, respectively.

RESULTS AND DISCUSSION

Basic knowledge of HIV/AIDS by different characteristics

Knowledge about HIV/AIDS and selected characteristics are highly linked. Table 1 shows the percentage of women who have heard the name of HIV/AIDS and indicates that knowledge varies substantially by selected characteristics. Majority (about 70%) of Bangladeshi women have evidently heard about HIV/AIDS. Data in Table 1 indicate that only 29% of currently married women (CMW), 43% formerly married women (FMW) have never heard of HIV/AIDS. Nevertheless, currently married women have head about HIV/AIDS than the formerly married women. Table 1 also shows that urban women (87% CMW and 69% FMW) have heard more about HIV/AIDS than rural women (61% CMW and 48% FMW). It can be observed from Table 1 that among all the women there is no strong variation in highest age group between currently married and formally married women. Higher number of currently married women was found in age group of 20 - 24 years and higher number of

Table 1. Percentage distribution and result of contingency analysis of currently and formerly married women who have ever heard of HIV/AIDS by different characteristics, Bangladesh, 2007.

Characteristics	Ever heard HIV/AIDS: 2007					
	Currently married			Formerly married		
	Yes	No	Total	Yes	No	Total
Bangladesh	71.00	29.00	10146	56.90	43.10	850
Residence						
Urban	87.00	13.00	3803	69.20	30.80	347
Rural	61.40	38.60	6342	48.50	51.50	503
	2 = 757.303; df = 1; p = 0.000			**2 = 35.732; df = 1; p = 0.000**		
Age group						
15-19	77.80	22.20	1300	81.30	18.80	48
20-24	80.20	19.80	2082	73.90	26.10	92
25-29	75.20	24.80	1861	50.70	49.30	73
30-34	68.90	31.10	1548	63.70	36.30	113
35-39	67.00	33.00	1450	58.90	41.10	146
40-44	58.90	41.10	1041	49.90	53.10	177
45-49	54.70	45.30	863	49.30	50.70	201
	2 = 330.414; df = 6; p = 0.000			**2 = 38.022; df = 6; p = 0.000**		
Educational level						
No education	45.50	54.50	3058	40.20	59.80	470
Primary	67.20	32.80	3040	68.00	32.00	228
Secondary	91.50	8.50	3216	90.60	9.40	128
Higher	99.80	0.20	831	100.00	0.00	24
	2 = 1979.791; df = 3; p = 0.000			**2 = 142.362; df = 3; p = 0.000**		
Employment						
Unemployment	72.50	27.50	7080	61.20	38.80	381
Business	66.80	33.20	521	63.60	36.40	88
Service	99.40	0.60	169	88.90	11.10	9
Rickshaw puller	63.80	36.20	207	50.00	50.00	60
Labour	83.70	16.30	784	51.10	48.90	219
Poultry cattle raising	57.20	42.80	1194	51.90	48.10	54
Other	43.20	56.80	183	44.70	55.30	38
	2 = 323; df = 6; p = 0.000			**2 = 15.181; df = 6; p = 0.020**		
Divisions						
Barisal	67.30	32.70	1357	54.30	45.70	81
Chittagong	68.40	31.60	1803	56.10	43.90	139
Dhaka	77.70	22.30	2174	63.30	36.70	166
Khulna	81.60	18.40	1565	66.70	33.30	147
Rajshahi	66.40	33.60	1927	55.60	44.40	153
Sylhet	61.40	38.60	1320	45.10	54.90	164
	2 = 227.810; df = 5; p = 0.000			**2 = 18.098; df=5; p = 0.003**		
News paper						
Yes	4.40	95.60	1748	93.20	6.80	205
No	82.60	17.40	4279	80.50	19.50	73
	2 = 177.303; df = 1; p = 0.000			**2 = 6.362; df = 1; p = 0.012**		

Table 1. Contd.

Characteristics	Ever heard HIV/AIDS: 2007					
	Currently married			Formerly married		
	Yes	No	Total	Yes	No	Total
Radio						
Yes	83.30	16.70	2397	74.00	26.00	154
No	67.20	32.80	7748	53.20	46.80	696
	2 = 229.502; df = 1; p=0.000			**2 = 22.390; df = 1; p = 0.000**		
TV						
Yes	88.30	11.70	5693	76.90	33.10	420
No	48.90	51.10	4452	37.40	62.60	430
	2 = 1878.276; df = 1; p = 0.000			**2 = 134.955; df = 1; p = 0.000**		

Notes: Formerly married = separated, deserted, divorced, widowed; Currently married define as who have their husband Labour = 3% domestic servant, 1.8% factory worker, blue collar service, 4.2% carpenter, mason, bus/taxi driver are included; Other = 1% farmer and 1% agriculture are included.

formerly married women was found in age group of 15 - 19 years. Again, about 45% currently married women in the age group of 45 - 49 have never heard the name of HIV/AIDS, whereas 53% formerly married women in the age group of 40 - 44 have never heard the name of HIV/AIDS.

It was found that women in higher age group had heard less of HIV/AIDS than women in young age in both cases (currently married and formerly married). Again, currently married and formerly married women's knowledge is gradually increasing as educational level increases. Again, almost about 100% currently married women and about 89% formerly married women who engage in service work have heard about HIV/AIDS whereas in both cases, women in other categories have not heard about HIV/AIDS. The respondents from Sylhet Divisions are (about 39% CMW and about 55% FMW) less likely to know about HIV/AIDS than respondents from other divisions, and highest percentage exists in Khulna Division for CMW (about 82%) and FMW (about 67%). The major source of getting the information about HIV/AIDS is the mass-media. Most of the (93%) formerly married women were informed about HIV/AIDS from newspapers while only 4 percent currently married women were informed from the same source. Again, getting information about HIV/AIDS by radio and TV used more percentage of CMW (83 and 88%) and FMW (74 and about 77%) respectively. Results presented in Table 1 showed that most of the variables are significantly associated with hearing about HIV/AIDS in both currently and formerly married women and different characteristics, but the same picture was not seen in only formerly married women in the case of employment.

The results of multiple logistic analyses of currently and formerly married women

The results of multiple logistic analyses of currently and formerly married women who have ever heard about HIV/AIDS are presented in Table 2. From the table we found that among all socio-demographic factors and urban-rural differences that are statistically significant associated with the knowledge of ever heard of HIV/AIDS, the effect of respondents schooling, mass-media, employment, age group, divisions and urban-rural difference are strongest on CMW than FMW. It is also found from Table 2 that the educational level (but only secondary level education), employment status of the respondents in Dhaka and Khulna Divisions as well as the mass-media have significant effect on the correct knowledge of ever heard about HIV/AIDS for currently married women. The significant results (except divisions) were also found for formerly married women. So, we may conclude that CMW have more knowledge of ever heard of HIV/AIDS than FMW. This is because CMW used all types of mass -media and have higher educational level; this gives the statistically significant result for collecting the correct knowledge of ever heard of HIV/AIDS.

Knowledge of HIV/AIDS prevention

It is true that ever heard knowledge about HIV/AIDS transmission had not reached the vast majority of the people, only fewer knew about how to prevent it. For example, unadjusted proportions of the urban population who mentioned avoidance or abstinence from unsafe sexual

Table 2. Result of logistic regression analysis of currently and formerly married women who have ever heard of HIV/AIDS, Bangladesh, 2007.

Independent variables	Currently married		Formerly married	
	B	Odds ratios	B	Odds ratios
Age groups				
15-19	RC	RC	RC	RC
20-24	0.069	1.071	0.812	2.253
25-29	0.050	1.051	0.524	1.688
30-34	0.079	1.083	0.371	1.449
35-39	- 0.206	0.814	0.093	1.098
40-44	- 0.237	0.789	- 0.106	0.900
45-49	- 0.131	0.877	0.342	1.408
Divisions				
Barisal	RC	RC	RC	RC
Chittagong	- 0.003	0.997	- 0.450	0.637
Dhaka	0.678***	1.970	- 0.240	0.787
Khulna	1.060***	2.885	- 0.393	0.675
Rajshahi	- 0.061	0.941	0.70	1.073
Sylhet	- 0.050	0.951	- 0.572	0.564
Residence				
Urban	RC	RC	RC	RC
Rural	- 0.821***	0.440	- 0.566*	0.568
Educational level				
No education	RC	RC	RC	RC
Primary	0.441**	1.555	0.695	2.003
Secondary	1.442***	4.231	1.471**	4.353
Higher	4.268***	71.368	19.461	2.8E+08
Employment				
Unemployment	RC	RC	RC	RC
Business	- 0.104	0.901	0.732	2.078
Service	0.841	2.320	16.053	9373995
Rickshaw puller	1.077**	2.935	- 1.869*	0.154
Labour	0.928***	2.529	0.598	1.818
Poultry cattle raising	- 0.402**	0.669	- 0.477	0.621
Other	0.872**	0.418	0.136	1.146
Mass-media				
Heard newspaper	0.490***	1.632	0.293	1.341
Heard radio	0.628***	1.874	0.717*	2.048
Heard TV	1.582***	4.862	0.846**	2.331
Constant	0.164	1.179	0.213	1.237

Notes: Significant level, *** < 0.01, ** < 0.05 and * < 0.1 and RC = reference categories.

relation, using condoms every time during sexual intercourse, limiting sexual intercourse to one uninfected partner who has no other partner, using sterilized needle or syringe and safe blood transfusion as means of preventing HIV/AIDS were only 16, about 18, 17, 29 and 30% respectively as observed in Table 3. Among the way of prevention, the most frequently mentioned way was safe blood transfusion (about 30% in the urban and about 33% in the rural population), followed by using sterilized needle or syringe (29% in the urban and 32% in the rural

Table 3. Percentage of people aged 15 - 49 with correct knowledge about ways of HIV/AIDS prevention, by place of residence, Bangladesh, 2007.

Ways of prevention	Bangladesh, 2007		
	Urban	Rural	Total
Abstaining from sexual relation	16.27	17.16	33.43
Using condoms[C]	17.52	16.72	34.20
Limiting sexual intercourse to one uninfected partner[P]	16.67	17.06	33.73
Using unsterilized needle or syringe	29.17	32.35	61.52
Via blood transfusion	29.72	32.58	62.30

Notes: Urban-Rural difference is statistically significant at p < 0.01 1; C = using condoms every time they have sexual intercourse; P = partner who has no other partners.

Table 4. Odds ratios estimated by multiple logistic regression of having correct knowledge about HIV/AIDS prevention of currently and formerly married women by selected characteristics whose age 15 - 49, Bangladesh, 2007.

Characteristics	Currently married					Formerly married				
	A	B	C	D	E	A	B	C	D	E
Age groups										
15-19	RC	RC	RC	RC	RC	RC	RC	RC	RC	RC
20-24	1.015	1.050	0.875*	0.988	0.968	0.699	1.631	0.715	1.476	0.623
25-29	0.915	0.947	0.783***	1.008	0.934	1.285	1.317	0.542	2.341	0.622
30-34	0.930	0.988	0.791**	0.912	1.015	0.774	0.841	0.549	1.813	0.785
35-39	1.022	0.992	0.862*	0.929	0.958	1.528	1.402	1.425	2.522	0.976
40-44	0.937**	0.945	0.874	0.756**	0.850	1.086	0.713	0.472	1.566	0.839
45-49	0.844	0.688***	0.954	0.860	0.911	0.934	0.886	0.704	1.827	0.956
Divisions										
Barisal	RC	RC	RC	RC	RC	RC	RC	RC	RC	RC
Chittagong	0.851	0.798**	0.747**	0.878	0.867	0.813	0.956	0.550	1.341	1.044
Dhaka	1.284***	1.019	1.109	1.865***	1.821***	0.928	1.224	0.601	0.647	1.076
Khulna	1.523***	1.409***	1.307**	3.445***	3.064***	1.654	2.443*	0.447	1.603	1.082
Rajshahi	1.078	1.109	1.242**	1.634***	1.285**	2.221	1.153	0.885	1.801	1.043
Sylhet	0.908	0.937	0.759***	0.977	0.883	1.049	1.547	0.469	0.599	0.477
Residence										
Urban	RC	RC	RC	RC	RC	RC	RC	RC	RC	RC
Rural	0.816***	0.720***	0.857***	0.545***	0.515***	0.880	0.955	0.818	0.690	0.691
Education										
No education	RC	RC	RC	RC	RC	RC	RC	RC	RC	RC
Primary	1.190	1.195	1.324*	1.641***	1.470**	1.331	0.818	0.670	1.146	1.408
Secondary	1.564***	1.955***	2.178***	3.345***	3.037***	2.620	2.084	1.009	3.404	3.365
Higher	2.722***	4.779***	4.801***	8.078***	11.280***	7.413**	4.339	2.661	7.069*	5.900
Employment										
Unemployment	RC	RC	RC	RC	RC	RC	RC	RC	RC	RC
Business	1.161	1.029	1.172	0.912	1.065	0.684	2.124*	0.919	1.782	1.940
Service	0.808	1.594***	1.523**	2.711**	1.925	0.890	1.200	2.911	4.900	1.000
Rickshaw puller	1.849***	0.801	1.909***	1.310	1.959*	2.115	2.597	0.583	0.379	0.425
Labour	1.131	1.403***	1.167*	1.496***	1.618**	0.975	1.500	1.243	1.190	0.992
Poultry cattle	0.985	0.964	0.951	639***	0.668***	0.593	0.574	1.452	0.847	0.457
Other	1.493*	0.772	0.698	671*	0.635*	0.465	0.545	0.000	0.718	0.566

Table 4. Contd.

Characteristics	Currently married					Formerly married				
	A	B	C	D	E	A	B	C	D	E
Mass-media										
News paper	1.134**	1.280***	1.103*	1.406***	1.488***	1.112	1.056	1.203	1.256	1.200
Radio	1.128**	1.029	1.098*	1.415***	1.650***	1.327	0.575*	0.900	2.366*	1.903
TV	1.653***	2.162***	2.036***	3.180***	3.366***	1.181	1.499	1.796	2.560*	2.226**

Notes: A = Abstaining from sexual relation; B = Using condoms every time they have sexual intercourse; C = Limiting sexual intercourse to one uninfected partner who has no other partners; D = Using unsterilized needle or syringe; E = Via blood transfusion and Significant level, ***< 0.01, **< 0.05 and * < 0.1.

population). Nevertheless, it is evident that people could acquire correct knowledge about HIV/AIDS easily through increased publicity.

Multivariate logistic regression analysis results show that education has a major effect on having correct knowledge about HIV/AIDS prevention for both CMW and FMW. For example, there were odd ratios of knowing about safe blood transfusion, using sterilized needle or syringe, using condoms every time during sexual intercourse, abstaining from unsafe/sexual relation and limiting sexual intercourse to one uninfected partner who has no other partners among women with the highest level of education (Table 4). In addition, it is remarkable that the positive relationship between media exposure and the knowledge about HIV/AIDS prevention persists even after controlling all other selected variables in our country.

It is noteworthy that when other factors were taken into account, the odds ratios of knowing about safe blood transfusion as preventive method were significantly higher among CMW than FMW and among higher educated women than illiterate or less educated women for both CMW and FMW. Respondents with residential status, educational status, exposure to mass media and all age groups are less likely to agree that safe blood transfusion can prevent HIV/AIDS. Thus, the statistically significant effects of residential status and exposure to mass media have statistically significant effect on the knowledge of safe blood transfusion for CMW, but for FMW it is only through the mass-media- TV and radio.

CONCLUSION AND RECOMMENDATION

Awareness of HIV/AIDS has become the burning issue of the day. The knowledge of HIV/AIDS in Bangladesh has long been a topic of interest to population research because of its apparent direct relationship with lack of health facilities and indirectly with poverty. By running and interpreting the logistic regression analysis, study shows that residence, education of respondents and prevention are the major factors of HIV/AIDS. This indicates that various socio-economic and demographic factors have played a crucial role in influencing HIV/AIDS in Bangladesh. Though, it is difficult in poor setting like Bangladesh, the regarding authority should take proper steps in improving the situation of education in rural areas as well as throughout the country. However, there is a real need for more in depth studies of this topic. Thus, necessary action is called for to reduce future level of HIV/AIDS in the country in order to achieve better living conditions in the future.

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